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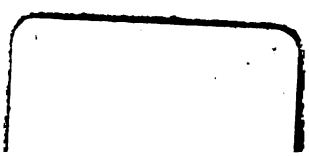

J. R. Rutland

Vol. XI No. 3

THE BULLETIN

OF THE

ALABAMA POLYTECHNIC INSTITUTE

AUBURN

CATALOGUE
1915-16

ISSUED MONTHLY
BY THE INSTITUTE
MAY, 1916

Entered as Second-Class Matter, March 29, 1915, at the Post-Office, at Auburn, Ala., under the Act of August 24, 1912.

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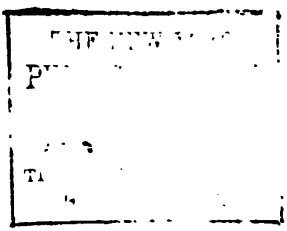

Main Building

CATALOGUE

OF THE

ALABAMA POLYTECHNIC INSTITUTE

STATE COLLEGE

FOR THE

BENEFIT OF AGRICULTURE AND THE MECHANIC ARTS

AUBURN, ALABAMA

1916

1916
Post Publishing Company
Opelika, Ala.

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CALENDAR FOR 1916-17-18

1916

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COLLEGE CALENDAR 1916–17

Summer Session	June 8 to July 19, 1916
Examination for Admission Begins	Monday, Sept. 11, 1916
Session Begins	Wednesday, Sept. 13, 1916
First Term Begins	Wednesday, Sept. 13, 1916
Mid-Term Examinations	Oct. 23, 24, 25, 1916
Literary Society Celebration	Nov. 30, 1916
First Term Ends	Thursday, Dec. 21, 1916
Second Term Begins	Wednesday, Jan. 3, 1917
Mid-Term Examinations	Feb. 10, 12, 13, 1917
Senior Class Exercises	Thursday, Feb. 22, 1917
Literary Society Celebration	Thursday, Feb. 22, 1917
Second Term Ends	Monday, March 26, 1917
Third Term Begins	Monday, March 26, 1917
Senior Theses Reported	May 1, 1917
Sophomore Class Exercises	May 1, 1917
Field Day	May 1, 1917
Final Examinations Begin	Saturday, May 26, 1917
Commencement Sermon	Sunday, June 10, 1917
Annual Meeting of Trustees	Monday, June 11, 1917
Alumni Day	Monday, June 11, 1917
Junior Class Celebration	Monday, June 11, 1917
Festival of Lights, 8 P. M.	Monday, June 11, 1917
Commencement Day	Tuesday, June 12, 1917

TRUSTEES

His Excellency, CHAS. HENDERSON, President ..... *Ex-Officio*
WM. F. FEAGIN, Superintendent of Education ..... *Ex-Officio*

TERM EXPIRES 1919

A. W. BELL (*Fourth District*) ..... Anniston, Ala.
HARRY HERZFELD (*Fifth District*) ..... Alexander City, Ala.
OLIVER R. HOOD (*Seventh District*) ..... Gadsden, Ala.

TERM EXPIRES 1923

R. F. KOLB (*Second District*) ..... Montgomery, Ala.
J. A. ROGERS (*Sixth District*) ..... Gainesville, Ala.
C. M. SHERROD (*Eighth District*) ..... Courtland, Ala.

TERM EXPIRES 1927

C. S. MCDOWELL, JR., (*Third District*) ..... Eufaula, Ala.
W. K. TERRY (*Ninth District*) ..... Birmingham, Ala.
W. H. OATES (*First District*) ..... Mobile, Ala.
T. D. SAMFORD (*Third District*) ..... Opelika, Ala.

R. W. BURTON, Secretary.

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(Arranged in groups in order of appointment).

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GEORGE PETRIE, M. A., Ph. D., *Dean of Academic Faculty, Professor of History and Latin.*

BENNETT BATTLE ROSS, M. S., *Dean of the Faculty of Agricultural Sciences, Professor of General and Agricultural Chemistry, and State Chemist.*

JOHN JENKINS WILMORE, M. E., *Dean of the Faculty of Engineering and Mines, Professor of Mechanical Engineering and Director of Laboratories.*

CHARLES ALLEN CARY, B. S., D. V. M., *Dean of the Faculty of Veterinary Medicine and Surgery, Professor of Physiology and Veterinary Science and State Veterinarian.*

JOHN FREDERICK DUGGAR, M. S., *Professor of Agronomy and Director of the Experiment Station and Extension Service.*

ARTHUR ST. CHARLES DUNSTAN, M. E., C. E., *Professor of Electrical Engineering and Physics.*

JOHN EDWARD WIATT, M. A., *Professor of Modern Languages.*

BENJAMIN SWEATT PATRICK, M. S., *Commandant and Professor of Military Science.*,

GEORGE NATHAN MITCHAM, C. E., E. M., *Professor of Civil Engineering.*

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WARREN ELMER HINDS, Ph. D., *Professor of Entomology.*

MICHAEL THOMAS FULLAN, M. E., *Professor of Mechanical Drawing and Machine Design.*

CLIFFORD LEROY HARE, M. S., M. A., *Professor of Physical and Physiological Chemistry.*

**LUTHER NOBLE DUNCAN, M. S., *Professor of School Agriculture and Superintendent of Junior and Home Economics Extension Department.*

WILLIAM WELCH HILL, E. E., *Professor of Electrical Engineering.*

JOHN FREDERICK MESSICK, M. A., Ph. D., *Professor of Mathematics.*

** In co-operation with United States Department of Agriculture.

The Institute is a distinctive school of science and its applications; being also the State College for the benefit of Agriculture and the Mechanic Arts, established by the State in 1872 by endowing it with the land grant appropriation made by the United States Congress in 1862.

The leading object of the Institute, in conformity with the act of Congress and the acts of the State Legislature, is to teach the principles and applications of science.

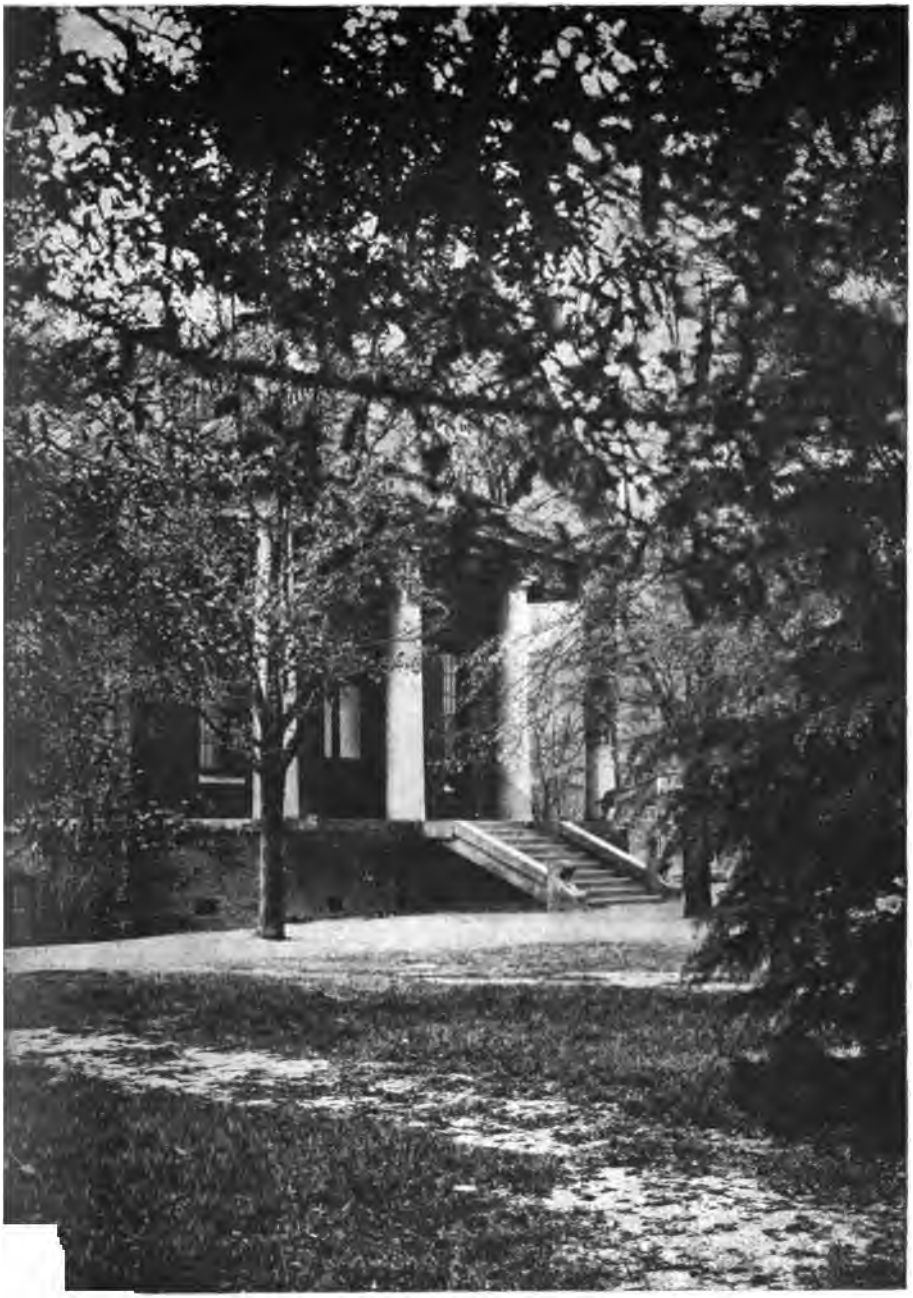
In its courses of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline and liberal education obtained by the study of language and other sciences are not neglected.

All students are required to study the English language. The Latin, French, Spanish and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the faculty. The Institute thus endeavors to educate as well as to instruct, to form character as well as give information of value.



Langdon Hall

LABORATORIES AND FACILITIES FOR INSTRUCTION

The Institute possesses facilities for giving laboratory instruction in history, Latin, and the departments of applied science:

COLLEGE OF ENGINEERING AND MINES.

I. Civil Engineering.—A flourishing department of civil engineering has existed in the Institute since its foundation in 1872. The department occupies four rooms; office, lecture room, and spacious drawing rooms. A large amount of practical work is given the students of this department in field work.

Summer Course.—An attendance upon two sessions of the four weeks' summer course which offers practical work in plane and higher surveying and in engineering, is required of the students taking civil engineering.

The department is equipped with transits, levels, compasses, plane tables, tapes, chains, hand instruments, and other necessary equipment. For the summer work there is a complete camping outfit consisting of wall tents, folding camp cots, stools, cooking utensils, dishes, etc.

II. Electrical Engineering.—In the engineering building four rooms and two offices are used by the department of electrical engineering. Two rooms are class rooms, another is used for the telephone laboratory, and the fourth is a laboratory for electrical measurements.

The wiring in this building is arranged so that alternating and direct currents of various voltages for power, lighting, and experimental purposes can be delivered to any room.

In connection with the laboratories there is installed a repair and construction shop furnished with a variety of hand tools and with power-driven machine tools.

A large amount of electrical testing and measuring apparatus as well as commercial machinery has recently been installed in the laboratories.

(*a*) The electrical measurement laboratory is furnished with a variety of resistance boxes, bridges, galvanometers, standard cells, condensers, etc., as well as two photometers. In addition to the laboratory instruments proper, just noted, the department is provided with representatives of most of the types of commercial ammeters, voltmeters, and indicating and recording wattmeters for A. C. and D. C. work. There is also a 30,000 volt transformer for break-down tests of insulating materials.

(*b*) The telephone laboratory is provided with a full line of telephonic apparatus, telephones, relays, condensers, plugs, jacks, lamp and other signals, etc., representative of the Bell and a number of independent telephone companies.

Single pieces are so mounted that they can be connected up in any desired manner and thus the connections of any particular system can be made up and tested out.

Twenty cells of Edison storage battery are used to furnish energy for a board equipped for common battery and magneto service with trunking circuits. This board is a standard 100-line board equipped with one strip of twenty answering and multiple jacks, ringing, listening keys, and cord signals for four cords.

(*c*) The laboratory is equipped with a large number of D. C. and A. C. generators, motors, and other appliances especially adapted for experimental work. In addition the equipment of the power plant is so arranged as to be readily available for purposes of instruction and investigation.

The machines for experimental work are arranged on testing platforms rendering them readily accessible. By means of a comprehensive wiring layout with individual connection boards for each machine, a wide variety of combinations of machines can easily be made.

The main power plant supplies power for operating all shops, and laboratories, pumping water, and lighting the town of Auburn. The connected motor load is a little over 250 horse power and about 100 killowatts are used for lighting service. This plant therefore affords unusual opportunities for students to obtain practical experience in the operation of steam and electrical machinery under commercial conditions.

III. Mechanical Engineering.—The laboratory work is considered an important part of the course and is arranged as far as possible to illustrate and supplement the work as carried on in the class room.

The steam and heat engineering laboratory is located on the first floor of Broun Hall, and the following apparatus is available for instruction: A 35-horse power cross compound engine, especially arranged for experimental work; a surface condenser with air and circulating pumps attached; a 20-horse power slide valve engine; an electric head light engine; a 15-horse power steam turbine; steam pumps, hot and cold water meters, tanks, scales, indicators, calorimeters, thermometers, pyrometers, steam gauges and apparatus for testing steam gauges.

In the line of internal combustion engineering the following

apparatus is available for instruction purposes: A 12-horse power four stroke cycle engine using gasoline or kerosene, a 4 1-2-horse power four stroke cycle kerosene engine, a 2 1-2-horse power kerosene engine, a 2 horse power two stroke cycle gasoline engine, an Ericsson hot air engine, a motor driven air compressor with motor, a volume blower, and the necessary tanks, scales, indicators and other auxiliary apparatus necessary for making tests.

A refrigerating plant of 2 1-2 tons capacity, including ammonia condenser and cooling coils, brine circulating system, pumps, meters, weighing scales and all apparatus needed for a study of the refrigeration cycle. The plant is driven by a steam engine, and provision is made to measure the power delivered and steam consumption of the engine.

The equipment of the power house is also available for instruction and consists of the following: A 300-horse power poppet valve engine; a 160-horse power angle compound engine; a 60-horse power simple engine; a 200-horse power water tube boiler; a 100-horse power water tube boiler; two locomotive air pumps.

Another room on the first floor of Broun Hall has been fitted up for a laboratory for testing of materials. In it are installed a Riehle testing machine arranged for making transverse, compression and tension tests, and micrometer apparatus for measuring the deformation of the specimen under test, and an Olsen torsion testing machine with auxiliary apparatus. There is also provided a cement testing outfit consisting of a testing machine, sieves, briquette moulds, boiler, and other apparatus for testing the strength, setting properties, fineness, and specific gravity of cement.

On the second floor of Broun Hall is located a laboratory for testing fuels, furnace and illuminating gases, and lubricants. The present equipment consists of a Mahler bomb calorimeter and a Parr calorimeter, for determining the heating value of fuels, complete apparatus for collecting and testing flue and furnace gases, apparatus for determining viscosity, the specific gravity, flash point, the coefficient of friction, and other properties of lubricating oils. A small electric motor furnishes power for grinding samples, driving blower for air blast, stirring, and other such work.

IV. Mechanic Arts.—The instruction in shop work is used as an auxiliary in technical education, and as a school of manual training in the arts that constitute the foundation of most industrial pursuits. The work performed by the students is instructive in character, and is intended to give the greatest

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amount of instruction in principle with the least repetition of operations, and the smallest consumption of time. The work is executed from drawings, and the instructor in charge of the class makes the lessons before the class, or gives such specific directions as may be necessary to enable the student to make them. This is supplemented by individual instruction.

All students in the freshman class take this shop work, three periods a week, each period being two hours long. The sophomore class takes two periods a week. The purpose is not to teach a trade, but to train the eye, the hand, and the mind to more perfect co-operation, a training which will be of value in any pursuit in life. This training involves the principles at the foundations of all trades, of equal value to the student who wishes afterwards to learn a trade.

Three-phase electric motors are used for driving the different shops, the motors receiving current from the large alternator in the power house.

(*a*) The wood department is located in a room 90 x 50 feet, and is provided with a surface planer, a variety saw, a swing cut-off saw, a boring machine, and a grindstone. There are in addition, thirty benches for carpentry work, with the necessary tools.

(*b*) The wood turning and pattern shop is located in a commodious room 40 x 60 feet, in the second story of the new power house. It is equipped with twenty-eight wood-turning lathes, a grindstone, a band saw, a buzz planer, a pattern maker's lathe, a double circular saw, a surface planer and a drum sand-papering machine.

In each of these departments special tools for occasional use are kept in a tool room for the purpose.

In addition to the regular carpentry tools in the benches each student is supplied with a set of chisels, and plane irons, with a locker to keep them in, and is held responsible for their care and condition.

(*c*) The forge shop is equipped with twenty-four down draft forges, with anvils, hammers, sledges, and other tools necessary for blacksmith work, including a punch and shear for cutting and punching iron, and a blacksmith drill. The blast is supplied by a blower driven by an electric motor. The smoke from the forges is removed through underground passages by a 60-inch exhaust fan and discharged into the chimney.

(*d*) The foundry is equipped with a 23-inch Collian cupola, having a melting capacity of 2,000 pounds of iron per hour, the necessary molding tools for bench and floor work, benches,

a core oven, ladles, molding flasks, a foundry crane, etc. A special blower driven by an electric motor is provided to furnish air blast for the cupola. There is also a brass furnace with crucibles, crucible tongs and the appliances necessary for making brass castings.

(e) The machine shop is a room 30 x 100 feet, and is equipped with ten 14-inch, two 16-inch and one 18-inch engine lathes, one 10-inch speed lathe, a 20-inch drillpress, a 10-inch sensitive drill, a 16-inch shaper, two iron planers, one 22-inch by 5 feet and the other 26-inch by 6 feet, a back geared universal milling machine, with vertical milling attachment, a water tool grinder, a bench grinder, a universal grinding machine, a universal cutter and reamer grinder, a twist drill grinder, and two power hack saws. Four of the engine lathes have compound rests, three have taper attachments, and one is fitted with a turret and a large number of special tools and fixtures which practically convert it into a manufacturing lathe, and serve to illustrate the methods of manufacture by duplicate parts.

For chipping and filing, eighteen benches are fitted with vises and each student is supplied with hammer, chisels, files and such other tools as he may need, and a locker in which to keep them. A gasoline engine is installed in one end of the shop, and is used for driving when the steam plant is not running.

The tool room is supplied with general machinist tools, such as chucks, drills, reamers, taps, dies, gauges, jigs, and special tools. A convenient room is supplied with lockers for keeping clothes, and basins supplied with hot and cold water for the use of the students. The different shops are equipped with electric lamps, and current is furnished when necessary.

V. Mining Engineering, Geology, Mineralogy.—The Department of Mining and Geology occupies parts of the first and third floors of the east wing of the Engineering Building. On the third floor the department occupies four rooms and office. The four rooms are all of about the same size, occupying about 960 square feet of floor space each: (1) lecture and recitation room, (2) mineralogical laboratory, (3) geological exhibit room, (4) drafting room. The class room has a seating capacity of sixty-four. The drafting room can accommodate twenty simultaneously. Here instruction is given in mechanical drafting, the calculation and plotting of field notes and in graphical design of mine structures.

In the mineralogical laboratory there are accommodations for thirty-six. Each student is supplied with drawer, locker,

and the necessary equipment for studies in crystallography, mineralogy and lithology. In the exhibit room adjoining is maintained a good type collection of minerals and lithological specimens as well as working specimens. There is also a collection of fossils and casts illustrating historical geology. Other equipment of the geological department consists of wooden, transparent, and skeleton crystal models; specific gravity balances; contact and reflecting goniometers; a petrographic microscope and slides for both microscope and stereopticon lantern.

VI. Ore Dressing.—The ground floor is occupied entirely by the metallurgical laboratory. The laboratory is well equipped with ore dressing plants. The concentrating plant consists of a gyratory crusher, two sets of roll crushers, two bucket elevators, four trommels or revolving screens, two classifiers, four Hartz jigs, and a seven-foot Wilfley concentrating table.

The stamp mill is of full size Nissen type, circular discharge and interior amalgamating plate. The outside amalgamating plate is full size, being ten feet long. The stamp mill and concentrating plant are fed from their respective bins by two different types of automatic feed. The ore before entering the bin is crushed to proper size by a Blake jaw crusher. The model cyanide plant illustrates the leaching department of the cyanide process and the extractor box work. It consists of one solution tank, two sand tanks, with false bottoms and filters, one gold tank, and a set of extractor box compartments of the up-flow type.

Besides the equipment already mentioned there is an automatic sampler. The cement floor in this department gives a good surface for illustrating coning and quartering in the process of hand sampling.

A twenty-horse power motor is the source of power for this laboratory. Shafting, belting and gears of various kinds transmit the power to the various machines so that a large variety of mechanism is illustrated.

VII. Architecture.—The department of architecture is located in four well lighted rooms in the Main Building. A floor space of 2,250 square feet is occupied by a lecture room, 25 x 30, a large draughting room, 30 x 35, a room for freehand drawing, 25 x 25, and a library, office, and special draughting room, 15 x 30, all connected by doors. These rooms are well furnished with large, substantial drawing tables and extra tables for freehand drawing, fixtures and additional equipment; a collection of selected plaster casts of classic sculpture and architectural details, a large number of architects' drawings and

signed original plates, and several hundred examples of free-hand drawings of various sorts; a library of standard works and portfolios of plates illustrating details of decoration and composition; four hundred lantern slides and many photographs of notable monuments of architecture; manufacturers' samples and catalogues; and various current journals devoted to architecture and the allied arts.

VIII. Mechanical Drawing and Machine Design.—The department of mechanical drawing and machine design is supplied with equipment for teaching mechanical drawing, descriptive geometry, kinematics, and machine design.

A convenient cabinet is supplied with a complete set of Schroeder's descriptive geometry models for demonstrating the principles of descriptive geometry and mechanical drawing. A small reference library and a library of selected catalogues of manufacturers, which is being established for the use of students in advanced machine design, occupy a suitable case. A Beck vertical wall file, 36 x 48 inches, for filing commercial blue prints, is filled with selected blue prints furnished by prominent manufacturers, and is made use of by students in machine design.

A number of kinematic models and a large collection of engineering specialties, sectioned to show interior, which were donated by the various manufacturers, occupy a sectional case, and are used in elementary work in machine design and mechanical drawing. The filing envelopes, which contain the students' drawings, are kept in alphabetical arrangement in a case of drawers.

This department is equipped with an outfit for making blue prints, consisting of two sun printing frames 18 x 24 inches and 30 x 42 inches, each mounted on a car and track and suitable conveniences for washing and drying the prints.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. Four large well-lighted drawing rooms which will accommodate (at one period) two hundred and fifty students, are provided with tables, lock boxes, etc. The drawing rooms have been equipped with one hundred and fifty new drawing tables of the most modern pattern.

COLLEGE OF AGRICULTURAL SCIENCES.

IX. Practical Chemistry.—The chemical apparatus recently purchased for the chemical laboratory consists of a full supply of the most improved instruments for practical work and in-

vestigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to the first class laboratories, there have been imported a new and improved Schmidt and Heinsch's polariscope, ten short-arm balances of latest pattern, Bunsen's spectroscope, Abbe refractometer, and other instruments for delicate and accurate work.

The investigations that are undertaken in this laboratory by scientific experts in connection with the work of the agricultural experiment station, are of special value to advanced students, and afford them unusual opportunities to learn the methods of scientific research.

The building contains a large general laboratory that accommodates eighty students, a special laboratory for seniors that will accommodate forty students, a lecture room with a capacity of one hundred and fifty seats, and nine other rooms, all appropriated to instruction and research in chemistry.

The State chemical laboratory for the official analysis of fertilizers is connected with this department.

X. Agriculture.—The agricultural experiment station, established in connection with the Institute, where experiments and scientific investigation relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professors in the field where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

The farm contains 304 acres.

XI. Botany.—The department of Botany occupies the western half of the third floor of Agricultural Hall. The rooms in use include a lecture room having seats for sixty-four students, a general laboratory accommodating forty-five students, a smaller laboratory for bacteriology and pathology accommodating twenty students, two small laboratories for professors and advanced students, two offices, a dark room, and store room. The general laboratory is supplied with microscopes, glassware, and the general equipment of apparatus and materials necessary for gross and microscopic work in plant morphology. The equipment for work in plant physiology and pathology has been very materially increased by the installation of much new apparatus needed for quantitative work in these subjects. These additions include autoclaves, sterilizers, incubator, dry-

ing oven, automatic water still, constant temperature baths, and ovens, Kjeldahl nitrogen determination apparatus, distilling and extraction apparatus, and many smaller pieces. These accessions to the equipment provide facilities for accurate work, under controlled conditions, in the chemical phases of plant physiology and for cultural studies in bacteriology and plant pathology, and permit expansion and development of the courses offered in these subjects to a degree commensurate with their importance.

The greenhouse of the department has a floor space 30 x 110 feet, with an adjoining laboratory room 30 x 30 feet. It is used for experimental work in plant pathology and plant physiology. The facilities provided are sufficient to permit the growth of ample material for class use in these subjects as well as for the investigation of special problems by the staff.

The botanic garden contains a fairly representative collection of the native trees and shrubs of the state, and it is planned to make a collecton of native medicinal plants. A portion of the garden will also be used as an outdoor experimental plat for the growing of materials employed in the work of instruction or in research.

XII. Pharmacy.—The laboratory of this department occupies the first and second floors of the annex to the chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations. The equipment for the laboratory includes a Laurent Polariscope; a Pulfrich refractometer; a vacuum distilling and drying apparatus, consisting of 1-2 horse power air pump, vacuum chamber, condenser, and Bruhl receiver for fractional distillation under diminished pressure, a three-horse power electric motor, a complete outfit for organic combustion work, and three chemical balances.

On the third floor is located the lecture room, storeroom, and drug mill room.

The new pharmaceutical laboratory on the basement floor of the pharmaceutical building is fitted with steam and has a full equipment for research work in pharmaceutical chemistry.

The students work in the laboratory with the professor from five to eight hours, six days in a week.

XIII. Horticulture.—A well lighted and heated one-story brick building adjoins the greenhouses. It affords space for about 40 students at one time for practical work in grafting, seed germination, seed testing, transplanting, grading, packing, spray mixing, etc. It contains also a complete equipment for instruction in canning. The two greenhouses, 20 x 80 feet

This building is 160 x 71 feet and contains forty-five rooms. It contains lecture rooms, administration offices, physical laboratory, museum, armory, etc.

LANGDON HALL.

This is a two-story building 90 x 50 feet. The second story is the audience hall, used for commencement and other public occasions.

POWER HOUSE AND SHOPS.

The first story of Langdon Hall is appropriated to the laboratory of first year wood work in mechanic arts.

The machine shop, forge shop, foundry, and boilers are installed each in separate buildings. A handsome building, two stories in height, pressed brick and stone trimmings has been constructed for occupation by the power plant on the first floor and by the pattern making department on the second floor. The dynamo laboratory occupies a separate building.

A commodious boiler house has been built. It is of fireproof construction and is supplied with track and cars for handling coal from the bin to the boiler. Scales are provided for keeping accurate account of the coal consumed.

BROUN ENGINEERING HALL.

The alterations and additions to the William LeRoy Broun Engineering Hall were completed and the building occupied in September, 1910. The finished structure is 250 feet long, 50 to 90 feet deep, and three and four stories in height, enclosing a floor area of 43,500 square feet. In construction this building is practically fire proof and in exterior design conforms in general to the other buildings on the campus. The walls are laid up in selected red brick, with limestone and terra cotta trimmings.

Offices, lecture rooms, and laboratories for the departments of mechanical, electrical, mining and civil engineering, machine design and drawing, are located within this building, and all the interior accommodations are especially arranged to facilitate the special work of each department.

This building, an illustration of which appears on a preceding page, was designed and superintended by the department of architecture.

CHEMICAL LABORATORY.

As shown on the opposite page, this is a two-story structure, 40 x 60 feet, with a rear projection, 35 x 60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and extra terra cotta ornamentation.

Chemical Laboratory

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building containing rooms and laboratories for the department of pharmacy.

The chemical laboratory for the agricultural experiment station occupies a building 60 x 26 feet, and is appropriated exclusively for chemical investigation and research.

SMITH HALL.

The Otis D. Smith Dining Hall, constructed of stone and pressed brick is two stories in height, and one hundred and forty feet in length. It will accommodate three hundred in the dining hall, and forty in the dormitory above. The style is semi-colonial.

CARNEGIE LIBRARY.

The library building is a handsome structure of classical outline monumental in its general effect. It is presented in an accompanying cut.

AGRICULTURAL BUILDING.

A handsome and commodious building is occupied by the departments of (1) agronomy, (2) horticulture, (3) botany, (4) entomology, and (5) animal husbandry, together with a separate set of buildings for practical work in each of these departments. It is the general opinion that there is no superior, if equal, group of buildings for agricultural purposes in the South. The building is three stories in height and is constructed of pressed brick with stone trimmings.

ALUMNI GYMNASIUM.

The central unit of the Gymnasium presented to the College by the Alumni was dedicated February 22nd, 1916. It is an attractive three-story structure 110 x 60 feet built of brick and stone. The first floor contains the dressing rooms and showers for the athletic teams, the students' lockers and showers being located on the second floor. The main Gymnasium hall is on the third floor.

It is planned to complete the building at an early date.

GRADUATES

CLASS OF 1915.

HONORS.

Members of the Senior Class who attain distinction with a grade of 95 per cent, are graduates with Highest Honor. Those who attain a distinction with a grade of 90 per cent. and less than 95, are Graduates with Honor. Those who attain less than 90 per cent. and more than 60 per cent. are Graduates.

DEGREES.

BACHELOR OF SCIENCE.

GRADUATES.

Charles Jefferson Allen ..... Lee
Edward Amende Allen ..... Jefferson
Lawrence Cary Amos ..... Conecuh
Samuel Faucett Anders ..... Tuscaloosa
Austin Elser Arthur ..... Marion
Carolus Magnus Blumenfeldt ..... Mobile
John Robert Boyle ..... Jefferson
Andrew Jackson Brooks ..... Lowndes
John Willis Campbell ..... Marshall
Arvey Carnes ..... Marion
Charles Walter Castleman ..... Talladega
Frank Gregory Charlton ..... St. Clair
Frederick Emmet Cooper ..... Calhoun
Clyde Augustus Donehoo ..... Blount
Frances Alexander Duncan ..... Lee
James Archibald Duncan ..... Georgia
Arturo E. Elizondo ..... Mexico
Charles Maynard Farrow ..... Tallapoosa
Julius Albert Fincken ..... South Carolina
Jesus Bartolo Galan ..... Mexico
David Adolphus Gammage ..... Barbour
Condie Pugh Gaston ..... Wilcox
Daniel DeKalb Gibson ..... Clay
Charles Hereford Gilmour ..... Jefferson
Wilmer Eugene Hall ..... Morgan
Franklin Augustus Hart ..... Montgomery
Crawford Buchanan Hawkins ..... Mississippi
James Thomas High ..... Marshall
Kirk Theron Holley ..... Marion
Walter Lucian Howard ..... Marshall
Robert Maull Howe ..... Lee
Clarke Upham Irvine ..... Mobile
Robert Brice Johnston ..... South Carolina
Lee Eugene Kimball ..... Lee
Fabius Henry Kohloss ..... North Carolina
Robert William Lawton ..... Florida
Edmund Clark Leach ..... Tallapoosa
Daniel Hugh McEachern ..... South Carolina
Clyde Fuller McLendon ..... Montgomery
Homer Hosea Ballou Mask ..... Lee

Joel Philip Melvin ..... Tennessee
Leslie Albert Miller ..... Walker
Jay Millican ..... Marion
Carl Dent Montgomery ..... West Virginia
Charles Fletcher Moreland ..... Texas
Lorenzo Daniel Morgan ..... Dallas
James McCoy Oliver ..... Tallapoosa
Lex Sneed Owens ..... Pike
Robert Jemison Owens ..... Hale
William Ware Palmer ..... Lee
George Allen Patterson ..... Mobile
Leonard Graham Pearce ..... Autauga
Milliard Hosmer Pearson ..... Randolph
Jack Noble Peebles ..... Montgomery
Hamilton Manoah Robertson ..... Tennessee
Billy Glenn Rushing ..... Escambia
Hardy Booker Sandlin ..... Marion
Albert Vertner Sevier ..... Louisiana
Thomas Chilton Smith ..... Jefferson
Philip Nicholas Sowell ..... Escambia
Ransom Davis Spann ..... Montgomery
Victoria Steele ..... Lee
Thomas James Stephenson ..... Dallas
Harry Humphrey Stirling ..... Jefferson
Louis Edwin Stotlar ..... Illinois
Leonidas Polk Sweatt ..... Jefferson
Hassie Earl Terrell ..... Lee
William Stewart Ticknor ..... Lee
Furman Leffell Tucker ..... South Carolina
Arthur Pearce Turner ..... Colbert
Homer Heard Turner ..... Colbert
Ira Davis Vail ..... Greene
Albert Weaver ..... Escambia
Felix Branyon White ..... Marion
William Lemuel White ..... Marion
Frank Whitaker Wilmore ..... Lee
Eugene Hewitt Wilson ..... Blount
Gautier Conde Yancey ..... Macon

GRADUATES WITH HONOR.

William Emmet Ayres ..... Lamar
Jackson Frederick Bazemore ..... Coosa
Albert Bonds ..... Greene
Louis Roderick Botsai ..... Jefferson
Oscar Carson Bottoms ..... Marion
Ernest Carnes ..... Marion
Alfred Lee Harrell, Jr. ..... Chambers
Cosette Woodley Harrison ..... Montgomery
Wilbur Fisk Littleton ..... Florida
Ellison Smyth McKissick ..... South Carolina
Pierce R. V. Pettis ..... Clarke
Cleveland Gillespie Sharp ..... Morgan
John Asa Simms ..... Sumter
Joseph Paullyn Wilson ..... Pike

GRADUATE WITH HIGHEST HONOR.

John Boyd Overstreet ..... Kentucky

GRADUATES IN PHARMACY (PH. G.)

Cecil Charles Bean ..... Cleburne
Jesse Jared Coleman ..... Escambia
Simpson Wright Day ..... Morgan
James Shields Gaskell ..... Autauga
Homer Samuel Gentry ..... Bibb
Hoyt Greer ..... Cleburne
Charles Archibald Harris ..... Clarke
Simon Mathew Jones ..... Barbour
Edwin Lee McMillan ..... Wilcox
Thomas Richard Nash ..... Shelby
Ethridge Bryant Thompson ..... Clay
Ira Junius Wiggins ..... Monroe

GRADUATE WITH HONOR.

Vann Lindley Spruiell ..... Jefferson

PHARMACEUTICAL CHEMIST (PH. C.)

Loathur Guy Webb ..... Calhoun

GRADUATES IN VETERINARY MEDICINE (D. V. M.)

Godfrey Charles Bevan ..... Jefferson
Leon J. Bonner ..... Clay
Sanford Gollie Carter ..... Randolph
Issachar Grady Gauntt ..... Tallapoosa
Travis Branch Gissendanner ..... Dale
Thomas Blake Howle ..... Calhoun
Robert Morgan Lambert ..... Monroe
Herbert Bryan Nixon ..... Calhoun
Guy Maxey Parrish ..... Lee
Irby Rheuel Pollard ..... Crenshaw
Wade Hampton Reinhardt ..... North Carolina
William Simp Seibold ..... Marshall
Roy Felton South ..... Blount
Frederick Steele ..... Lee
Redding Stancell Sugg ..... North Carolina
Charles Thigpen ..... Lowndes
Marvin William Williams ..... Lee
Vincent Brown Wright ..... South Carolina

POST GRADUATE DEGREES.

MASTER OF SCIENCE.

Cleburne Ammen Basore ..... Jefferson
Frank Ewell Boyd ..... Chambers
Otto Brown ..... Choctaw
James Reid Campbell, Jr. ..... Macon
Charles Washington Culpepper ..... Randolph
Joe John Haralson ..... Lee
Marvin Pipkin ..... Florida
Frederick William Wendt ..... Montgomery
Joseph Madison White ..... Montgomery

PROFESSIONAL DEGREES IN COURSE.

MECHANICAL ENGINEER.

Robert Fernand Angelo Benson ..... Mobile
Arthur Zellars Heard ..... Lee
Ralph Waldo Riddle ..... Jefferson

ELECTRICAL ENGINEER.

Arthur Trezevant Feaster, Jr. ..... Jefferson

John Rush Lester ..... Georgia
Eugene Mason Lindsey ..... Georgia
John Llewellyn Prosser ..... Mississippi
Otto Karthaus Seyforth ..... Madison

DEGREES FOR PROFESSIONAL WORK.

ELECTRICAL ENGINEER.

Holland Eugene Cox ..... Jefferson
William Walton Garrett, Jr. ..... Jefferson
James Weston Moore ..... Louisiana

CIVIL ENGINEER.

Thomas Henry Edwards ..... Montgomery
Samuel Thomas Jones, Jr. ..... Tuscaloosa
Thomas Cole Mitchell ..... North Carolina

HONORARY DEGREE.

DOCTOR OF SCIENCE.

Altus Lacy Quaintance ..... Washington, D. C.

DISTINGUISHED STUDENTS
SESSION 1914-1915.

Students who receive a grade of above 90 per cent. and less than 95 in three studies in the Freshman Class, in four in the Sophomore Class, five in the Junior, and in six in the Senior, are distinguished for excellence in scholarship, and are awarded Certificates of Distinction. Those who receive a grade above 95 per cent, are awarded Certificates of Highest Distinction.

FRESHMAN CLASS.

DISTINCTION.

William Wallace Allen ..... Florida
Jerome Cochran Ard ..... Dale
Walter Steele Black ..... Limestone
William Arnold Guess ..... Mississippi
Joseph Henry Hamilton, Jr. ..... Jefferson
DeWitt Hicks ..... Tallapoosa
Charles L. Isbell ..... DeKalb
Robert Lapsley ..... Jefferson
Phares Wood Matthews ..... Jefferson
James Belser Mayes, Jr. ..... Georgia
John Albert Peterson ..... Coosa
Emory Echols Ruffin ..... Shelby
John Allen Strozier ..... Georgia
William Woodward Sullivan, Jr. ..... South Carolina
Lovell Lack Turley ..... Missouri
James Henry Witherington ..... Conecuh
William Herman Withington ..... Jefferson

HIGHEST DISTINCTION.

James Thomas Fowler ..... Elmore

SOPHOMORE CLASS.

DISTINCTION.

William Lee Blanton ..... Florida
Roy Gatman Carpenter ..... Marion
Alvan Christy Davis ..... Geneva
Ernest Linwood Deal ..... Tuscaloosa
Daniel Andrew Helmich ..... Jefferson
Edward Beverly Henry ..... Lee
James Roy Hines ..... Chambers
Ray Milton House ..... Calhoun
William Robert Lassiter ..... Russell
Hester Marion Lewis ..... Bibb
Albert Cotton McMillan ..... Russell
James Frederick Pruett ..... Russell
John Parker Shaffer ..... Tallapoosa
Frank King Simmons ..... Florida
Francis Bryan Wakefield, Jr. ..... Florida
John Meriwether Ward ..... Greene
George Egbert Weber, Jr. ..... Lee

Gilmore Clark Williams ..... Cullman
Charles Eddie Wilson ..... Marshall

HIGHEST DISTINCTION.

Alan Benjamin Pimm ..... Florida
Wilbur Thomas Shinholser ..... Georgia
Lamar Mims Ware ..... Georgia
Shu Min Wong ..... China

SPECIAL STUDENTS.

DISTINCTION.

Thaddeus Lamar Glenn ..... South Carolina
Wirter Shipp Hackworth ..... Jackson
Osie Columbus LaGrone ..... Dallas
Jep Edward Moody ..... Jackson
John Herbert Murray ..... Escambia
C. F. Nonnemacher ..... Calhoun

JUNIOR CLASS.

DISTINCTION.

James Warren Andrews ..... Montgomery
Joseph Davenport Browne, Jr. ..... Tennessee
George Roy Corcoran ..... Russell
Posey Oliver Davis ..... Limestone
Perry Jackson Edwards ..... Morgan
Herbert Lee Evans ..... Hale
Harry Gordon Farris ..... Etowah
Arnold Edmund Hayes ..... Jefferson
Andrew Orestes Jackson ..... Pike
Cyrus Edson Newman ..... Coosa
William Charles Payne, Jr. ..... Tennessee
Ernest Slager ..... Tennessee
Edward Ward Smith ..... Lee
Percy Reynolds Smith ..... Jefferson
Louis Truitt Wells ..... Pickens
Jesse Jay Williams ..... Clarke
Samuel Andrew Wingard ..... Montgomery
Michael Vernon Zimmerman ..... Jefferson

HIGHEST DISTINCTION.

Lee Irwin Davis ..... Mobile
Henry Lord Page King ..... Georgia
George Lampros ..... Montgomery

CATALOGUE OF STUDENTS
SESSION 1915-1916.

GRADUATE STUDENTS.

Ernest Clifton Adkins ..... Jefferson
Charles Jefferson Allen ..... Lee
Miles Augustus Askew ..... Marengo
William Emmet Ayres ..... Lamar
Jackson Frederick Bazemore ..... Coosa
Clyde Augustus Donehoo ..... Blount
Frances Alexander Duncan ..... Lee
Arturo Enrique Elizondo ..... Mexico
Julius Albert Fincken ..... South Carolina
David Adolphus Gammage ..... Barbour
Daniel DeKalb Gibson ..... Clay
Charles Hereford Gilmour ..... Jefferson
Cosette Woodley Harrison ..... Montgomery
James Baxter Jackson ..... Lee
Robert Brice Johnston ..... South Carolina
George Alston Kellum ..... Shelby
Lee Eugene Kimball ..... Lee
Edmund Clark Leach ..... Tallapoosa
~~Herbert Marshall Martin~~ ..... Florida
Joel Philip Melvin ..... Tennessee
Carl Dent Montgomery ..... West Virginia
Emery Tyler Motley ..... Randolph
~~Millard Fillmore Nixon~~ ..... Jefferson
John William Pace, Jr. ..... Lee
Pierce R. V. Pettis ..... Clarke
Ransom Davis Spann ..... Montgomery
Frances Victoria Steele ..... Lee
Hassie Earl Terrell ..... Lee
Albert Weaver ..... Escambia
Wilton Wendell Webb ..... Lee
Felix Branyon White ..... Marion
Frank Whitaker Wilmore ..... Lee

SENIOR CLASS.

~~John Gill Anderson, Jr.~~ ..... Tennessee
James Warren Andrews ..... Montgomery
Hayne Coker Appleton ..... DeKalb
John Dunklin Ashcraft ..... Lauderdale
Richmond Young Bailey ..... Chambers
John Tonice Belue ..... Lauderdale
~~George Woodbury Farra Bibb~~ ..... Texas
Wyly McGehee Billing ..... Montgomery
~~Roger McIver Bostick~~ ..... Mississippi
James Rosby Brown ..... Florida
Joseph Davenport Browne, Jr. ..... Tennessee
Walter Frederick Bulla ..... Georgia
~~Joseph Elliott Bumby~~ ..... Jefferson
~~James William Burgin~~ ..... Jefferson
William Alexander Burns, Jr. ..... Talladega
Green Berry Bush, Jr. ..... Choctaw
Robert Emmett Cammack ..... Clarke
Robert Ezekiel Campbell ..... Sumter
~~Wilmer Huxley Carter~~ ..... Florida

Kenneth Gladstone Caughman ..... South Carolina
~~Thomas Holmes Chapman~~ ..... Dallas
Thomas William Clift ..... Madison
George Roy Corcoran ..... Russell
William Davis Crawford ..... Macon
Samuel Neil Crosby ..... Baldwin
~~Joseph Alpha Cullens~~ ..... Lee
Richard Henry Cunningham ..... Choctaw
~~William Volpert Curtis~~ ..... Lee
~~Berrien~~ Walker Davis ..... Georgia
Lee Irwin Davis ..... Mobile
Posey Oliver Davis ..... Limestone
Robert Dennis ..... Pike
~~William Reese Dillard~~ ..... Georgia
~~Leo Donovan~~ ..... Dallas
Vernon James Douglass ..... Jefferson
David Merrick Dowdell ..... Lee
Ambrose Camp Duggar ..... Lee
Perry Jackson Edwards ..... Morgan
~~Paul Edward Engle~~ ..... Jefferson
Herbert Lee Evans ..... Hale
Harry Gordon Farris ..... Etowah
~~John Charles Farris~~ ..... Georgia
~~Seth Jordan Floyd~~ ..... Lee
John Wilbur Freeman, Jr. ..... Georgia
Roland Macon Fricke ..... Marshall
Edward Samuel Gatchell ..... Lee
Werter Shipp Hackworth ..... Jackson
Arnold Edmund Hayes ..... Jefferson
Frederick Hollis Haynie ..... Lee
Montgomery Lamar Howe ..... Lee
Andrew Orestes Jackson ..... Pike
~~John Rivers Jones~~ ..... Lee
~~William Lewis Kellum~~ ..... Shelby
Henry Lord Page King ..... Georgia
George Lampros ..... Montgomery
Glen David Liddell ..... Wilcox
~~William Chambers Lovejoy~~ ..... Mobile
Edmund Mitchell Manning ..... Chilton
Robert Forney Middleton ..... Etowah
George Augustus Miller, Jr. ..... Florida
William Thomas Mills ..... Jefferson
James Caldwell Mohns ..... Jefferson
John Daniel Moore ..... Bullock
Sarah Evelyn Moore ..... Lee
Claud Mortimer McCall ..... Escambia
~~Paul Sioussat McCormick~~ ..... Mobile
Laurrie Artemus McCranie ..... Florida
Alva Pinkston McCrary ..... Georgia
Clifford Braswell McManus ..... Georgia
~~Lawrence Marvin McRae~~ ..... Chambers
Emile Nelson ..... Mobile
Cyrus Edson Newman ..... Coosa
Lucius Rives Owsley ..... Elmore
~~Woodie~~ James Pace ..... Calhoun
William Charles Payne, Jr. ..... Tennessee
Joseph Bancroft Perry ..... Jefferson

Wilton Burton Persons ..... Montgomery
James Goggins Peterson ..... Coosa
George Arthur Pfaffmann ..... Lee
Frank Poole ..... Butler
Osie Clyde Prather ..... Lee
Dibble Manly Rickenbaker ..... South Carolina
Thomas Christopher Rives ..... Montgomery
James Thomas Roberts ..... Marshall
[redacted] ..... Baldwin
Otto Meinhardt Schomburg ..... Georgia
Frederick Gordon Sholes ..... Jefferson
Ernest Slager ..... Tennessee
Edward Ward Smith ..... Lee
[redacted] ..... Geneva
Jasper Newton Smith, Jr. ..... Georgia
[redacted] ..... Montgomery
Percy Reynolds Smith ..... Jefferson
[redacted] ..... Montgomery
George Henry Stewart ..... Coosa
Carl Laten Stuckey ..... Etowah
Francis Marion Taylor ..... Lee
John Ewing Taylor ..... Butler
Edward LeRoy Tuttle ..... Houston
Edwin Adolphus Wagner ..... Texas
[redacted] ..... Lee
George Lawrence Washington ..... Cuba
Louis Truitt Wells ..... Pickens
Jesse Jay Williams ..... Clarke
James Davis Williford ..... Lee
Samuel Andrew Wingard ..... Montgomery
William Wadsworth Wood ..... Jefferson
John Garland Woodall ..... Jackson
David A. Woodard ..... Louisiana
Oliver Eubert Young ..... Choctaw

JUNIOR CLASS.

William Chester Alexander ..... Russell
Irvin Gravely Ammen ..... Jefferson
Thomson William Bailey ..... Jefferson
Hammond Dudley Baker ..... Lowndes
William Watson Barron ..... South Carolina
Harrison Bates ..... South Carolina
Carl Lee Beall ..... Crenshaw
Julian Dumas Beard ..... Choctaw
Walter Gustavas Bevill ..... Hale
Thomas Wood Blanchard ..... Jefferson
William Lee Blanton ..... Florida
George Randolph Bowling ..... Tallapoosa
William McClellan Bruce ..... Wilcox
Cyril Kenneth Bryan ..... Jefferson
Frate Bull ..... Marion
Hugh Otis Burgess ..... Cleburne
Francis William Burns ..... Clay
Abner Boone Chapman ..... Covington
James Arthur Chappell ..... Jefferson
William Worth Corcoran ..... Russell
Mary Glenn Crenshaw ..... Lee
Ernest Linwood Deal ..... Tuscaloosa

Lewis Battle Dean ..... Tallapoosa
John Andrew Douglas ..... Mobile
Albert Hugh Dumas ..... Lee
Julius Eagle ..... Dallas
Annalee Edwards ..... Lee
Harrison Bartow Emerson ..... Etowah
Louis William Fogarty ..... Florida
Gordon Green Ford ..... Franklin
Joseph Marshall Foulks ..... Louisiana
Loraine Walker Funk ..... South Carolina
Joseph Best Grimsley ..... Georgia
Henry Haigler ..... Jefferson
Edward Beverly Henry ..... Lee
James Roy Hines ..... Chambers
Lovick Pierce Hodnette ..... Macon
Elza Bland Holloway (Irregular course) ..... Autauga
Charles L. Isbell ..... DeKalb
Leon Ledyard Jeffrey ..... Wilcox
John William Johnston ..... Blount
Allard Kaufmann ..... Louisiana
James Marion Kelly, Jr. ..... Georgia
Edgar Kimball ..... Lee
Captain Tullis Knight ..... Barbour
William Robert Lassiter ..... Lee
Hester Marion Lewis ..... Bibb
Joseph Thomas MacLean ..... Florida
William Wyman Owens ..... Pike
Alan Benjamin Pimm ..... Florida
Wallace Screws Pitts ..... Montgomery
John Carew Powell ..... Montgomery
Homer Prendergast ..... Texas
William Thomson Price ..... Tuscaloosa
Bryan Pritchett ..... Clarke
James Frederick Pruett ..... Russell
Joseph Posey Robertson ..... Fayette
Carey Cox Robinson ..... Tallapoosa
Robert Pearson Salter ..... Greene
Bradley Johnson Saunders, Jr. (Irregular course) ..... Jefferson
John Hadley Scott ..... Tennessee
Edward Noble Scoville, Jr. ..... South Carolina
Harry Berry Seybt ..... South Carolina
John Parker Shaffer ..... Tallapoosa
Sylvester Guinn Sharit ..... Jefferson
Wilbur Thomas Shinholser ..... Georgia
Frank King Simmons ..... Florida
Augustus Hoke Sloan ..... South Carolina
Harry Peckham Sparkes ..... Jefferson
William Augustus Stickney ..... Calhoun
Eunice Rebecca Stodghill ..... Lee
Philip Avary Terrell ..... Lee
Richard Hartwell Thach ..... Lee
John Earle Thomason ..... Lamar
Robert Lyle Thompson ..... Jefferson
Henry Philip Trawick ..... Lee
Conrad Grey Wall ..... Jefferson
John Meriwether Ward ..... Greene
Lamar Mims Ware ..... Georgia

Harold Smith Watkins ..... South Carolina
James Withrow Webb ..... Tuscaloosa
George Egbert Weber, Jr. ..... Lee
Newell Browne Wentworth ..... Mexico
Wheeler Williams, Jr. ..... Russell
Shu Min Wong ..... China
Barbara Wright ..... Lee

SOPHOMORE CLASS.

John Cooper Adams ..... Morgan
William Wallace Allen ..... Florida
Jerome Cochran Ard ..... Dale
Cyrus Andrew Ashcraft ..... Lauderdale
Richard Braxton Ashe ..... Colbert
William King Askew ..... Marengo
Earl Cranston Atkins ..... Cleburne
Walter Steele Black ..... Limestone
Madison LeRoy Bonner ..... Clay
Thomas Herbert Bonner ..... Clay
Robert Emmett Britnell ..... Franklin
Jesse Samuel Burbage ..... Jefferson
Guy Olney Burns ..... Lauderdale
Charles Cleveland Bush ..... Talladega
Colonel Richard Carnes ..... Marion
Roy Gatman Carpenter ..... Marion
Ralph Akin Carroll ..... Lee
Harry Montagnier Chaddock ..... Madison
Horace Lindsay Cooke ..... Jefferson
John Stephen Neal Davis, Jr. ..... Georgia
Ralph Emerson Davis ..... Georgia
Charles Leonard Dill ..... Madison
Richard Joseph Ducote ..... Mobile
Elmer Odell Duffey ..... Jefferson
Yndalicio Andres Elizondo ..... Mexico
McKendree Heard Floyd ..... Lee
James Thomas Fowler, Jr. ..... Houston
James Tarver French ..... Pike
Benjamin Bradley Fuqua ..... Lauderdale
James Leonard Garthright ..... Autauga
Horace Vernard Grimes ..... Texas
William Arnold Guess ..... Mississippi
James Richmond Hall, Jr. ..... Tallapoosa
Joseph Henry Hamilton ..... Jefferson
George Boltz Hawthorne ..... Wilcox
B. H. Haynes ..... Clay
William Caesar Hearn ..... Macon
Harold Herzberg ..... Georgia
Lewis Harris Heyman ..... Tennessee
DeWitt Hicks ..... Tallapoosa
Samuel White Hill ..... North Carolina
Sidney Bowie Hooper ..... Marshall
Henry Harris House ..... Etowah
John Thomas Hudson, Jr ..... Tennessee
William Jesse Isbell ..... DeKalb
David Charles Jimmerson ..... Lee
Elizabeth McTyeire Johnson ..... Lee
Thomas Jordan ..... Marshall
Dewey Killgore ..... Randolph

Albert Johnson Kirby ..... Jackson
Augustus Theodore Levie ..... Coosa
William Lithgow Liddell ..... Wilcox
Andrew Dowdell Lipscomb ..... Lee
James Hunter Martin ..... Limestone
Oscar Lafayette Martin, Jr. ..... South Carolina
Phares Wood Matthews ..... Jefferson
James Belser Mayes, Jr. ..... Georgia
George Rufus Mays ..... Marion
Robert Lee Miller ..... Walker
Richard Rose McAdory ..... Jefferson
Walter Littleton McArthur ..... Geneva
Leslie Bateson McCoy ..... Escambia
William Cook McKay ..... Montgomery
Thomas Turner McLemore ..... Jefferson
Oscar Lee McMurray ..... Franklin
Olin Coke Newell ..... Tallapoosa
Philip Lesley Nichols ..... Wisconsin
Ellison Avery Phillips ..... Clay
Herman Shelby Price ..... Madison
Herbert Balshaw Rigby ..... Georgia
Hickman Riley ..... Coffee
Milton Boyd Roberts ..... Mobile
William Johnston Ross ..... Calhoun
Emory Echols Ruffin ..... Shelby
John James Ryan, Jr. ..... Tennessee
Dudley Dunn Saunders, Jr. ..... Tennessee
William B. Saunders ..... Mississippi
Abb Llewellyn Scarbrough ..... Calhoun
Otto Henry Schultz, Jr. ..... Jefferson
John Andrew Shealy ..... Louisiana
Albert Edward Sheridan ..... Georgia
James Edgar Shotts ..... Marion
William Clem Sills ..... Wilcox
Robert Paul Simmons ..... Dale
John Marion Sparrow ..... Lee
Jason Weldon Spencer ..... Florida
William Matthew Stewart ..... Jefferson
Barckley Augustus Storey ..... Talladega
Aubie Casey Strickland ..... Lee
John Alan Strozier ..... Georgia
William Woodward Sullivan, Jr. ..... South Carolina
James Andrew Thigpen ..... Lee
Hubert Wright Thomason ..... Lee
Leo Tsiang ..... China
Lovell Lack Turley ..... Missouri
David Broome VanPelt ..... Talladega
Jesse Jordan Warren ..... Montgomery
John Harrison Watson ..... Lee
Laura Watt ..... Lee
Edward Clarke Whitfield ..... Kentucky
Earl DeWitt Williams ..... Houston
Allen Davidson Wiliamson ..... North Carolina
James Henry Witherington ..... Conecuh
William Herman Withington ..... Jefferson
Neel Samuel Yent ..... Florida

FRESHMAN CLASS.

Charles Harris Adams ..... Dale
Roland Lee Adams ..... Clarke
George Percer Allen ..... Tallapoosa
Simeon Arthur Allen ..... Shelby
Roger William Allen ..... Jefferson
Adrian Fuller Alsobrook ..... Chambers
James Walter Anderson ..... Hale
James Oliver Avery ..... Marion
Marion Russell Avery ..... Marion
William Henry Avery ..... Marion
David Lewis Baker ..... Florida
Costa Boone Barker ..... Cleburne
Vida Barker ..... Cleburne
Malory Lafoy Batson ..... Jefferson
Roy Samuel Beall ..... Crenshaw
Robert Marion Beasley ..... Lee
Charles Herschel Bedingfield ..... Lauderdale
Kline McCageor Bentley ..... Crenshaw
Wyatt Heflin Blake, Jr. ..... Colbert
Helen Louise Blasingame ..... Lee
Anthony Joseph Bowab ..... Mobile
Harold Alfred Bowron ..... Jefferson
Richard Courtlandt Bradford ..... Cherokee
Cecil Brannen ..... Crenshaw
Thomas Milton Brannon, Jr. ..... Barbour
Lyle Brown ..... Choctaw
Marvin Earle Bryant ..... Baldwin
George Larkin Burleson ..... Marion
Europe Alexander Caldwell ..... Jackson
Norman Glenn Camp ..... Georgia
William A. Campbell ..... Macon
Homer Carder ..... Jefferson
Harris Preston Carter ..... Monroe
Thomas Browning Chambers ..... Limestone
Linney Leonidas Childree ..... Dale
Charles Jefferson Christian ..... Shelby
John Beverly Christian, Jr. ..... Florida
Albert Louis Clark ..... Tallapoosa
John Brewer Coarsey, Jr. ..... Florida
Eugene Collier ..... Morgan
Charles Jordan Colquett ..... Crenshaw
Albert Alley Cook, Jr. (Irregular course) ..... Tennessee
William Cook ..... Walker
Jesse Glenn Corbett (Irregular course) ..... Dale
Armstrong Cory ..... Jefferson
William Henry Cotton ..... Georgia
Eugene Benson Crawford ..... Macon
Marion Graves Crosthwait ..... Jefferson
Frederick Harder Cutts ..... Georgia
Elwood Winton Deming ..... Conecuh
Robert Floyd Donehoo ..... Blount
Charles Edwin Doughtie, Jr. ..... Georgia
James Hodges Drake ..... Lee
Llewellyn Goode Duggar ..... Lee
George Webster Duncan, Jr. ..... Lee
James Armstrong Duncan (Irregular course) ..... Morgan

George Graham Dunn ..... Autauga
L. B. Dunnigan ..... Florida
Hugh Durrance ..... Florida
Albert Thomas East ..... Clay
Everette Champ Easter ..... Limestone
William Correll Edwards ..... Chilton
James Laurence Elliott ..... Shelby
Robert Ford Ellis ..... Escambia
Phillip David Fancher ..... Shelby
Alston Barnes Farrell ..... North Carolina
Lemuel Carldard Faulkner ..... Lamar
Dewey Mattison Ferrell ..... Greene
Franklyn Forbes ..... Florida
James Douglas Foster ..... Lee
Francis Otis Fox ..... Mississippi
Ernest Vassie Frederick ..... Marion
Philip Frederick ..... Georgia
James Michael Fullan ..... Lee
John Peyton Fuller, III. ..... Madison
Clarence Galloway ..... Pike
John Necklin Gardner ..... Georgia
William Henry Gardner ..... Pickens
Walter Lamont Garrard ..... Mississippi
Edmond Peter Garrett ..... Limestone
Euel Howard Gentry ..... Bibb
Thomas Bryan Gilbert ..... Louisiana
James Needham Gilmer ..... Choctaw
William Francis Godwin ..... Georgia
John Carey Goodwin ..... Marshall
Samuel Earle Greene ..... Jefferson
Ivy Moore Griffin ..... Clarke
Paul Stanley Grimes ..... Georgia
Glynn Hightower Grisham ..... Limestone
James Madison Hall, Jr. ..... Bullock
Louis Miller Hall, Jr. ..... Tennessee
William Robert Hall ..... Jefferson
Wayne Willard Hall ..... DeKalb
Donald Brinton Hammond ..... Houston
Verner Cyril Hanna ..... Mississippi
Everette Lee Harper ..... Pickens
Carven Bratie Harvey ..... Blount
Walter Ferrell Hasson ..... Tuscaloosa
John Carroll Hay ..... Madison
James Edwin Hillhouse ..... Jefferson
DeWitt Herndon Holder, Jr. ..... Mississippi
Mayfield Judson Hollingsworth ..... Pickens
Albert Lee Holloway ..... Monroe
William Louis Holmes ..... Houston
Frank Marchant Houston ..... South Carolina
John Edward Howell ..... Dale
Charles Moorman Hurt, Jr. ..... Tennessee
John Ralph Jackson ..... Jefferson
E. C. Johnson ..... Georgia
Arthur Lafayette Jones ..... Calhoun
Charles Alfred Jones, Jr. ..... Jefferson
Grady Whittle Jones ..... Escambia
Archibald Monroe Kearley ..... Monroe

Landon Gaines Kelly ..... Tennessee
Henry Thomas Killingsworth, Jr. ..... Georgia
Howard Malorie Kilpatrick ..... Pickens
William Duke Kimbrough ..... Wilcox
Sergay Philip Knazeff ..... Russia
Ponsonby Kyle ..... Morgan
Robert Gideon Langdon ..... Pickens
Arthur Armon Lauderdale ..... Marion
George Scarbrough Leatherbury, Jr. ..... Mobile
Herman Lee ..... Bibb
Milton Paul LeGrand ..... Montgomery
L. D. Lessley ..... Clay
William Mem Little ..... Georgia
James Otis Lisenby ..... Houston
George Ernest Lumpkin ..... Marshall
Dashiell Livingston Madeira ..... Florida
Clarence Lenwood Manning ..... Covington
Hubert Reynolds Martin ..... Dale
Merlin Angelo Martin ..... Mobile
Frederick Jolly Matthews ..... Georgia
George Augustus Mattison ..... Clay
George Knox Miller, Jr. ..... Florida
Willard Mitford Mobley ..... Jefferson
Jep Edward Moody ..... Jackson
John Bartow Murphy ..... Talladega
Minnie Murphy ..... Macon
George Terry Murrah (Irregular course) ..... Jefferson
Bruce William Murray ..... Mobile
Christopher Murray ..... Tennessee
Durward Quigley McCord ..... Marshall
Herbert Worth McCown (Irregular course) ..... Madison
Cecil Barron McCrary ..... Clay
Warren William McGowan ..... Louisiana
Albert Plant McIntosh ..... Florida
James Henry McIntosh, Jr. ..... Franklin
Joseph Harlan McKinstry ..... Pickens
Henry Thomas McKown ..... Baldwin
James Hamilton Hall McKoy ..... Georgia
Forrest Whitlock McMeans ..... Jefferson
Banks McRaven, Jr. ..... Mississippi
Solomon Joseph Nadler ..... Etowah
Laurence Alton Nall ..... Louisiana
Julius Rembert Nesbitt ..... Jefferson
Edwin Oliveira ..... Wilcox
George Eldridge Owens ..... Pike
John Harlan Owens ..... Clay
John Kelly Page ..... Geneva
James Edmund Parker ..... Calhoun
Philip William Pelts ..... Mississippi
Marvin Lucian Perdue ..... Coffee
Capers Jones Perryman ..... Jefferson
Charles Scudder Peter ..... Shelby
Sidney Clarke Phillips ..... Mobile
Wilbur Arnold Pipkin ..... Florida
Joseph Leeve Pitts ..... Bullock
Elisha Frederick Pollard ..... Crenshaw
Jefferson William Pruett ..... Coosa

Joel Marbury Rainer ..... Bullock
Robert Freitas Redding ..... Georgia
Russell Sage Reed ..... Etowah
John Hugh Reynolds ..... Lee
Robertson Riggs ..... Tennessee
Leo Napoleon Rivais ..... Georgia
Everett Roberts ..... Tennessee
Clifford Rutland ..... Georgia
Cole Savage ..... Pickens
John Hamilton Schuler ..... Etowah
Charles Clinton Seed ..... Hale
Leon William Segrest ..... Geneva
Leroy Lafayette Self ..... Blount
John McElroy Selman ..... Coosa
Emmette Cecil Sharpe ..... Calhoun
Arthur Shaver ..... Cullman
Charles Martin Shaw ..... Macon
Frank Herndon Sims ..... Sumter
Thomas Andrew Sims ..... Walker
Glenn Orr Sligh ..... Jefferson
Angus Atkinson Smith ..... Geneva
Alma Smith ..... Lee
Horace Arthur Smith ..... Mississippi
Leon Smith ..... Georgia
Frank Clements Smith ..... Marengo
James Thomas Smith ..... Georgia
Lansing Taylor Smith, Jr. ..... Calhoun
Curtis E. Snead, Jr. ..... Etowah
Henry Clay Snellgrove ..... Marshall
Norman Dantzler Spann ..... Houston
Roland Lee Sparkman ..... Jefferson
Charles Hall Speights, Jr. ..... South Carolina
Ezra Stonewall Stabler ..... Butler
Archibald Stallings ..... Texas
Cohen Elbert Stapp ..... Pickens
Samuel McKinley Stewart ..... Coosa
Thomas Vernon Stinson ..... Cherokee
Andrew McAdams Stovall, Jr. ..... Walker
John Braden Suggs ..... Talladega
John Patrick Sullivan ..... South Carolina
Nim Bellotte Sullivan ..... South Carolina
Marvin Taylor ..... Marion
Emmett Edwin Terry ..... Madison
James Wallace Tidmore ..... Hale
Franklin Osborn Tilton ..... Geneva
Lionel Earl Tisdale ..... Florida
Cyril Theodore Tucker ..... Mobile
Roy Hope Turner ..... Tallapoosa
James Fielding Vaughan ..... Mobile
Ross Franklin Wadkins ..... Lee
Glover O'Neal Waits ..... Covington
Felix Augustus Walker ..... Russell
Harold Walker ..... Jefferson
George Elmer Waller ..... Lee
Charles Walton, Jr. ..... Georgia
James Kittrell Ware (Irregular course) ..... Etowah

James Clarence Watson ..... Geneva
William Benjamin West ..... Cherokee
Chalmers Eugene Whigham ..... Barbour
Winston Campbell White ..... Sumter
Pryor Allen Williams ..... Limestone
Arthur Herbert Williamson ..... Lowndes
George Alfonso Wright ..... Lee
George Herbert Wright ..... Lee

DEPARTMENT OF PHARMACY.

FOUR-YEAR COURSE.

GRADUATE.

Emery Tyler Motley ..... Randolph

SENIOR CLASS.

Thomas William Clift ..... Madison
Montgomery Lamar Howe ..... Lee
William Lewis Kellum ..... Shelby
Frank Poole ..... Butler

TWO-YEAR COURSE.

GRADUATE.

Howard Milton Boyd ..... Lee
Homer Samuel Gentry ..... Bibb
Thomas Richard Nash ..... Shelby

SECOND YEAR.

John Robert Argo ..... Coosa
Preston Holcomb Cannady ..... Clarke
Troy Lawless Carter ..... Perry
Jeffries Nathaniel Dubberly ..... Lee
Merritt Knight ..... Wilcox
Osie Columbus LaGrone ..... Dallas
Albert Young Masters ..... St. Clair
John Elijah Norman ..... Lowndes

FIRST YEAR.

Leslie Allen Akins ..... Barbour
Charles Martin Cherry ..... Houston
Ernest Matkin Dunn ..... Marengo
James Thomas Farmer ..... Geneva
Ellis Gray Griffin ..... Clarke
Pugh Bryan Harris ..... Pike
Glover Abraham Johnson ..... Cherokee
George Lawrence Morris ..... Crenshaw
Byron Ross McBryde ..... Geneva
Henry Erskine McNamara ..... Jefferson
Harden Calvin Reynolds ..... Lee
Rhett Goode Reynolds ..... Crenshaw
William Claude Rivenbark ..... Geneva
McDuff Whitehead ..... Coosa
Charles George Yarbrough ..... Monroe

IRREGULAR STUDENTS.

William Patrick Baldwin ..... Baldwin
Roy Clayton Glasgow ..... Lamar
Max Matison Moreman ..... Lee
Carl Vernon Tanner ..... Mobile
John Keener Thomas ..... Hale

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

GRADUATES.

Thomas Blake Howle ..... Calhoun
Frederick Steele ..... Lee

THIRD YEAR.

Charles Ray Adams ..... Clarke
Roy Avant ..... Coosa
William Elmer Bachelor ..... Elmore
Roe Ballow ..... Marengo
James Wyatt Boylston ..... South Carolina
George L. Breeden, Jr. ..... Dallas
Ernest Will Bryan ..... Lee
Forrest Eugene Butler ..... Crenshaw
Elmer Bernard Campbell ..... Marshall
Irwin Roland Cooper ..... Marengo
Archie Lee Faulk ..... Geneva
Legrand Jones Hargett ..... Lee
George Douglas Ingram ..... Lee
Alto Lee Johnston ..... Pike
Benjamin Franklin Jones ..... Wilcox
Joseph Ernest Kendrick ..... Dallas
Edwin Doc King, Jr. ..... Wilcox
Samuel Jones Rayfield ..... Coosa
Richard Kinion Roberson ..... St. Clair
Walter Stancel Robertson ..... Tennessee
Willis Charles Roycroft ..... Mobile
George Ellis Taylor ..... Jefferson
Thomas Mitchell White ..... Fayette
Edgar Eldred Williams ..... Elmore

SECOND YEAR.

Dee Lloyd Allen ..... Sumter
William M. Boggan ..... Sumter
Billy Elza Carlisle ..... Macon
Hosmer LaFayette Farr ..... Jefferson
Condie Pugh Gaston ..... Wilcox
Thaddeus Lamar Glenn ..... South Carolina
Thaddeus Henry Ingram, Jr. ..... Lee
Byron Newman Lauderdale ..... Coosa
Harmon King Law ..... Pike
Merida Kendrick Monk ..... Barbour
William Lonnie Parrish ..... Chilton
Staton Possien ..... Lee
Walter James Schimmel ..... Jefferson
George Malcolm Steed ..... Wilcox

FIRST YEAR.

Daniel Lorenzo Campbell ..... Etowah
Richard Taylor Compton ..... Marengo
William Francis Donahue ..... Lee
David Malphren Enslen ..... Elmore
William Asher Fuqua ..... Barbour
John Hart Fussell ..... Geneva
Guy Rutherford Garroway ..... Mississippi
Robert Henry Glenn ..... South Carolina
Roy Howard Herron ..... South Carolina
Allen Jesse Miller ..... Clarke

John Bruner Phillips, Jr. ..... Choctaw
Leon Louis Powell ..... Choctaw
William Sumter Reynolds ..... Pike
Harrison Webb Sloane ..... Mississippi
William Lee Smith ..... Jefferson
James Ralph Sullivan ..... Montgomery
Fletcher Leroy Vinson ..... Lee
Will Smitherman Wilson ..... Chilton

IRREGULAR STUDENTS.

Thomas Walter Boman ..... Cleburne
Ruffus Bloomer Brandon ..... Pickens
Frank Cook ..... Choctaw
Turner Mitchel Dennis ..... Chilton
Leonard Johnson Hill ..... Calhoun
Burrell M. Johnson ..... Marengo
Judson Jowers ..... Elmore
Guy Edgar Pace ..... Georgia
Caggie Pedrick ..... Georgia
Frank Kirk Peterson ..... Dallas
Ruffus Arnold Roberts ..... Randolph
Callis Deal Thompson ..... Pike
Young Wall ..... Limestone
Edward Hunter Welles ..... Tennessee
DeWitt Zaricor ..... Tennessee

TWO-YEAR COURSE IN MECHANIC ARTS.

Merton Robbins Arnold ..... Montgomery
Charles Brady Bambarger ..... Green
Desmond Crain ..... Wilcox
John Audly Grant ..... Georgia
Joseph Henry Henderson ..... Montgomery
Milo Barrett Howard ..... Montgomery
Raymond Boone Kelly ..... Jefferson
Franklin Dumas Kimbrough ..... Wilcox
John Cater Lawton ..... Florida
Gordon Brady McLemore ..... Jefferson
James Little Oliver ..... Sumter
John William Persons ..... Montgomery
William Earl Shinn ..... Talladega
Charles Waldo Smith ..... Jackson

TWO-YEAR COURSE IN APPLIED ELECTRICITY.

SECOND YEAR.

Charles Benton Barnett ..... Mobile
George Lavender Ferguson ..... Georgia
Cecil Lamb ..... Florida
Forest Edgar Nichols ..... Baldwin
Wilson Roby ..... Lee
Gayle Borden Williams ..... Mississippi

FIRST YEAR.

Claude Leland Chester ..... Georgia
Felix Albartus Coleman ..... Mobile
John Fleming Deer ..... Covington
James Graves Duncan, Jr. ..... Autauga

Charles Wesley Gantt ..... Elmore
Jesse McNeal Gantt ..... Covington
Elledge Garrett ..... Georgia
John Reynolds Gibson ..... Monroe
Frank Gurley Hall ..... Madison
William Ingram ..... Georgia
Ernest Wiley Kennedy ..... Clay
Thomas Maury Leslie ..... Etowah
John Allen Lewis, Jr. ..... Georgia
George Lafayette Morris ..... Jefferson
Henry Ernest McIntosh ..... South Carolina
Angus Arthur McIntyre, Jr. ..... Talladega
Richard Daniel Stevens ..... Madison
Samuel Jones Tankersley ..... Georgia
Cecil Werth Thompson ..... Randolph
Joseph LeNoir Trammell ..... Florida
Leon Terrill Weaver ..... Escambia
Onnie Ray Wyatt ..... St. Clair

TWO-YEAR COURSE IN AGRICULTURE.

SECOND YEAR.

Houston Davidson Alexander ..... Lee
George Edward Bryant ..... Baldwin
George LaFayette Cather ..... Talladega
Walter Pierce Crawford ..... Marengo
Madison Jones ..... Hale
Marcus Gatewood Milligan ..... Cleburne
Edward Penn McGee ..... Tuscaloosa
James Morriss Peters ..... Talladega
Hess George Snodgrass ..... Jackson
Steele Alvis Spencer ..... Hale
Dewey Elbridge Tanner ..... Mobile
Jerome Alexander Vandiver ..... Lee
Robert Newman White ..... DeKalb
Edward Reuben Wren ..... Talladega

FIRST YEAR.

Joel Richard Abney ..... South Carolina
Morton Teadford Ansley ..... Elmore
Jefferson Davis Blake ..... Colbert
Wallace Boaz, Jr. ..... Talladega
James Bruce Bronaugh, Jr. ..... Madison
John A. Chancellor ..... Cherokee
William Davis Colley ..... Pike
Samuel Donovan Croll ..... Pickens
Luther Hamie Durham ..... Etowah
Samuel Ryon Edge ..... Lee
Claud Burgin Edwards ..... Jefferson
Vivian Pendleton Gaines, Jr. ..... Mobile
Upshaw Franklin Gibson ..... Clay
Marshall Grey Harbuck ..... Russell
Clarence Reuel Hartsock ..... Mobile
Robert Andrews Hill ..... Pickens
John Munford Jackson ..... Marengo
Jacob Emmett Johnson ..... Lamar
William Skeggs Johnston ..... Morgan
Fraser Westmoreland Kolb ..... Montgomery

Denison Sidney Ledyard ..... Montgomery
Lamont Major ..... Jefferson
Joseph Walsh Matthews ..... Mobile
William Edward Moore ..... Dallas
John Callaghan Moulton ..... Mobile
Frank Wilson Parker ..... Kentucky
Frederick Crone Partridge ..... Mobile
Thomas Laydon Pierce ..... Barbour
James Stephen Pridgen ..... Dale
Osborne Britain Rogers, Jr. ..... Mississippi
Thomas Jefferson Ruffin ..... Mobile
Malcolm Floyd Smith ..... Autauga
William Alburto Stiles ..... Jefferson
Tilghman Anderson Turner ..... Jefferson
O'Neal Monroe Ware ..... Georgia
Thomas Mabson West ..... Montgomery
John Robert Witt, Jr. ..... Limestone
Joseph Augustus Worthington ..... Jefferson

IRREGULAR STUDENTS.

Saul Perry Adelson ..... Jefferson
Joseph Patric Allgood, Jr. ..... Calhoun
Carl Cofield Amerson ..... Lee
Edward Yancey Argo ..... Talladega
Linnie Ayres ..... Lee
Melville Noel Barnes ..... Texas
Clarence Reneau Beutell ..... Georgia
Paul Rubens Bidez ..... Georgia
Herman West Bingham ..... Madison
Forest Reynold Birchfield ..... Jefferson
Charles Jacob Brockway, Jr. ..... Sumter
Brisbane Hanks Brown ..... Texas
Ollie Clifton Bryan ..... Coffee
Gurley Everett Burgin ..... Jefferson
Hugh William Caffey ..... Jefferson
John Hosmer Campbell ..... Clay
Colon Eric Carlovitz ..... Mississippi
Giles Homer Carlovitz ..... Mississippi
Elwyn Allen Cary ..... Lee
Jack Silas Case ..... Butler
D. Arnold Caylor ..... Bullock
Joe Wheeler Clancy ..... Jefferson
Fred Victor Cluis ..... Georgia
Jackson Lowery Collins ..... Mississippi
Charles Brandon Crow ..... Walker
Andrew Howell Crull ..... Jefferson
Berry Cruse ..... Jefferson
Herschel Jackson Daniel ..... Georgia
Edwin Didlake ..... Jefferson
Bernard Douglass ..... Crenshaw
Jesse Wallace Drake ..... Lee
Margaret Louise Duggar ..... Lee
Ehrman Thrasher Enslen ..... Elmore
Royl Harden Fletcher ..... Georgia
Cecil M. Forbes ..... Jefferson
William Edward Frawley, Jr. ..... Jefferson
Legare Hairston ..... Marengo
Adolphus Alexander Hale ..... Sumter

Estes Hargis ..... Jefferson
Walter Elbert Harrell ..... Lowndes
Ellis Phillip Harris ..... Jefferson
Homer Percy Harris ..... Jefferson
Daniel Andrew Helmich, Jr. ..... Jefferson
Nolan Helms ..... Butler
James Edwin Hickey, Jr. ..... Montgomery
Joseph Earl Hooker ..... Walker
Daniel Webster Hollis ..... Henry
Ray Milton House ..... Calhoun
William John Howard ..... Montgomery
Samuel Robert Huey ..... Jefferson
William Schloss Jacobs ..... Georgia
Louis Earl Jenkins ..... Jefferson
Edwin Harley Jessup ..... Georgia
Lucius Wiley Johnson ..... Tuscaloosa
Neal Corbly Johnson ..... Colbert
Robert Thomas Kernahan ..... Colbert
John Edward Key ..... Chambers
Howard Cecil Kilpatrick ..... Jefferson
Henry Hayes Lamar ..... Lee
Robert Lapsley ..... Dallas
Marion Earl Lasater ..... Jackson
Jennings Bryan Liles ..... Escambia
Frank Corry Lipscomb ..... Lee
John Bannister Leek ..... Etowah
John Catlett Martin, Jr. ..... Georgia
Victor Irwin Masters ..... Georgia
Oliver Norfleet Massengale ..... Elmore
Neil Carpenter Miller ..... Montgomery
Gordon Wright Morton ..... Lee
John Herbert Murray ..... Escambia
William Franklin McLemore ..... Talladega
James Gay Nall ..... Jefferson
Carl Frederick Nonnemacher ..... Calhoun
Douglas Gordon Pamplin ..... Lauderdale
James Elliotte Peck ..... Morgan
Byron Yarbrough Pennington ..... Covington
Julius Albert Peterson ..... Coosa
Samuel Matthews Phillips ..... Georgia
Burke Dulain Ponder ..... Georgia
James L. Rouse ..... Elmore
James Donald Russell ..... Calhoun
Yetta Glenn Samford ..... Montgomery
Atlee Davis Sample ..... Morgan
Mortimer Dewey Sanders ..... South Carolina
William Hardin Saunders ..... Tennessee
Bluford Guy Sharp ..... Randolph
Byron William Smith ..... Jefferson
Clifford Augustus Smith ..... Jefferson
Cornelius Clyde Smith ..... Lee
Jane Smith ..... Lee
Salideon Aulius Spencer ..... Hale
Williard Lamont Stevens ..... Mississippi
Alexander Ogden Taylor ..... Florida
John Simpson Tennent ..... North Carolina
Charles Thigpen ..... Lowndes

Junie Marcus Thomason	Lamar
Ira Asa Thompson	Pike
George Samuel Ticknor	Georgia
Adassa Urieli	Jefferson
George Vincent Walker	Morgan
Alfred Benjamin Walter, Jr.	Louisiana
Joseph Reese Wampler	Jackson
Charles Spencer Warren	Montgomery
James Frederick Watson	Jefferson
Ulon Victor Wellons	Georgia
James Wallace Whatley	Lee
Walter Alexander Whatley	Lee
Robert Nelson White	Montgomery
Felix Henry Williams	Lee
Robert Fleming Williford	Lee
Lamar Monroe Wise	Georgia
Gordon Worley	Tallapoosa
Andrew Jackson Wynne	Marengo
Robert Wynne, Jr.	Georgia
Michael Vernon Zimmerman	Jefferson

SUMMARY

Graduate Students	32
Senior Class	110
Junior Class	86
Sophomore Class	105
Freshman Class	234
Pharmacy	36
Veterinary Medicine	73
Mechanic Arts	14
Two-Year Course in Applied Electricity	28
Two-Year Course in Agriculture	52
Irregular Students	115
	885
Deduct for names counted twice	5
Total	880

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY

English	501	Landscape Gardening	27
History	466	Geology	82
French	30	Civil Engineering	61
German	39	Surveying	408
Spanish	68	Sanitary Engineering	17
Latin	82	Hydraulics	28
Education	182	Structural Design	40
Political Economy	54	Electrical Engineering	117
Mathematics	480	Mechanical Engineering	217
Chemical Laboratory	197	Mining Engineering	10
Chemistry	472	Architecture	15
Agronomy	405	Mechanical Drawing	346
Animal Husbandry	482	Machine Design	95
Physics	308	Agricultural Drawing	52
Botany	165	Descriptive Geometry	78
Entomology	51	Mechanic Arts	432
Zoology	67	Mineralogy	14
Horticulture	172	Physiology	155
Forestry	44	Veterinary Science	97
Veterinary Medicine	73	Pharmacy	48
Military Department	802		

RESIDENCE BY STATES.

Alabama	692
Georgia	66
Florida	28
South Carolina	24
Tennessee	21
Mississippi	18
Louisiana	8
Texas	7
North Carolina	4
Kentucky	2
Missouri	1
West Virginia	1
Wisconsin	1
Mexico	3
China	2
Cuba	1
Russia	1

SUMMER SESSION

JUNE 10 TO JULY 21, 1915.

CATALOGUE OF STUDENTS.

Lucile Adcock	Tallapoosa
Olive Addison	Macon
Josephine Allen	Georgia
John Gill Anderson	Tennessee
Austin Elser Arthur	Marion
W'illiam King Askew	Marengo
Evelyn Ayres	Mississippi
Roe Ballow	Marengo
Sarah Ruffin Bandy	Limestone
Costa Boone Barker	Cleburne
Vida Barker	Cleburne
James Arthur Bates	Chambers
Carl Lee Beall	Crenshaw
Roy Samuel Beall	Crenshaw
Modesta Beasley	Lee
Addie Bell	Lowndes
James William Lee Benson	Georgia
Herman West Bingham	Madison
Mayfus Bird	Marengo
Mrs. W. C. Blasingame	Conecuh
J. B. Bledsoe	Coffee
Lula Bledsoe	Coffee
William P. Bledsoe	Wilcox
Albert Bonds	Greene
Oscar Carson Bottoms	Marion
Martha Elizabeth Boyd	Lee
Thomas Massie Boyd	Texas
J. S. Branyon, Jr.	Lamar
William Hayden Brooks	Jefferson
Brisbane Hanks Brown	Texas
Walter Frederick Bulla	Washington, D. C.
Jesse Samuel Burbage	Jefferson
Hugh Otis Burgess	Cleburne
J. D. Burkhead	Lee
George Larkin Burleson	Marion
Robert Emmett Cammack	Clarke
James Reid Campbell, Jr.	Macon
John Willis Campbell	Marshall
Maude Carlisle	Lee
Ernest Carnes	Marion
Eugene Leon Caton	Jefferson
Kenneth Gladstone Caughman	South Carolina
D. Arnold Caylor	Bullock
Linney Leonidas Childree	Dale
W. T. Clearman	Lamar
Birdie Cline	Lee
William Davis Crawford	Macon
Luther E. Creel	Marshall
William Velpeau Curtis	Lee
Emma Davis	Montgomery
Vashti Davis	Macon
R. H. Dickinson	Autauga
Louie Dillard	Lee
William Reese Dillard	Georgia

Bernard Arthur Douglas ..... Crenshaw
Cordelia Dowdell ..... Montgomery
Jesse Wallace Drake ..... Lee
Allen Drew ..... Mobile
Francis Camp Duggar ..... Lee
Llewellyn Goode Duggar ..... Lee
Margaret Duggar ..... Lee
Thomas Duncan ..... Lee
Lillian Gladys Fargason ..... Chambers
John Charles Ferris ..... Georgia
Mary Flanagan ..... Lee
Joseph Marshall Foulks ..... Louisiana
James Michael Fullan ..... Lee
John Hart Fussell ..... Geneva
Dana Gatchell ..... Lee
Lillian Gardner ..... Chambers
Lorene Garner ..... Lee
Kate Gilchrist ..... Geneva
Sara Gregory ..... Marengo
Ila Dean Griffin ..... Walker
Orleana Lamar Grigg ..... Jefferson
Ethel Adell Hadaway ..... Georgia
Adolphus Alexander Hale ..... Sumter
Joe John Haralson ..... Lee
Cosette Woodley Harrison ..... Montgomery
Franklin Augustus Hart ..... Montgomery
William Caesar Hearn ..... Tuskegee
Annie Henderson ..... Tallapoosa
Emma Henderson ..... Tallapoosa
Perry Anderson Hewitt ..... Montgomery
Kirk Theron Holley ..... Marion
Arthur William Holstun ..... Jefferson
E. P. Hood ..... Dallas
Walter Lucian Howard ..... Marshall
L. J. Howell ..... Winston
Mrs. L. J. Howell ..... Winston
Charles L. Isbell ..... DeKalb
William Jesse Isbell ..... DeKalb
William Schloss Jacobs ..... Georgia
B. M. Johnson ..... Marengo
Neal Corbly Johnson ..... Colbert
Marie Jones ..... Lee
Thomas Jordan ..... Marshall
William Lewis Kellum ..... Shelby
Virginia Katherine Kernodle ..... Tallapoosa
John Edward Key ..... Chambers
Eleanor Kidd ..... Shelby
Dorothy Kimball ..... Lee
Edgar Kimball ..... Lee
Lee Eugene Kimball ..... Lee
C. C. King ..... Coosa
George Lampros ..... Montgomery
Carolyn Lamar ..... Bibb
Cecil Lamb ..... Florida
Jane Laxon ..... Limestone
Mattie Lee ..... Chambers
Walter Lee ..... Conecuh

L. Leftwich ..... Shelby
Hester Marion Lewis ..... Bibb
George Ernest Lumpkin ..... Marshall
Maude Luttrell ..... Calhoun
Hilary Herbert McGinty ..... Georgia
Mae Lily McGinty ..... Georgia
Leila McGregor ..... Walker
Julia E. McGuire ..... Macon
Clyde Fuller McLendon ..... Montgomery
Mildred McLendon ..... Tallapoosa
Josephine Virginia McWhorter ..... Montgomery
Homer Hosea Ballou Mask ..... Lee
Phares Wood Matthews ..... Jefferson
Mrs. J. F. Messick ..... Lee
Jay Millican ..... Marion
Ernest Bushrod Mills ..... Autauga
Mrs. Ernest Bushrod Mills ..... Autauga
Sibbie Moore ..... Lee
Maria Augusta Moseley ..... Dallas
James Gay Nall ..... Jefferson
Frederick M. Nelson ..... Mississippi
William Belmont Nickerson ..... Georgia
James Little Oliver ..... Sumter
Lex Owens ..... Pike
Sara Pace ..... Lee
Jessie Palmer ..... Lee
C. A. Peavy ..... Escambia
John Williams Persons ..... Montgomery
George Arthur Pfaffmann ..... Lee
Pierce R. V. Pettis ..... Clarke
Frank Poole ..... Butler
Myrt Warren Pouncey ..... Escambia
Osie Clyde Prather ..... Lee
Mary Clyde Prince ..... Lee
Viola Reid ..... Barbour
Mary Belle Richardson ..... Macon
Ralph Waldo Riddle ..... Jefferson
Thomas Christopher Rives ..... Montgomery
Walter Hugh Roberts ..... Baldwin
Mary Jane Ross ..... Tallapoosa
Nora Letitia Rothrock ..... Lee
Frances Rutland ..... Georgia
Gilbert Grover Samson ..... Jefferson
Edward Noble Scoville, Jr. ..... South Carolina
Thomas Jones Sellers ..... Tallapoosa
Cleveland Gillespie Sharp ..... Morgan
Philip Nicholas Sowell ..... Escambia
Salideon Aulius Spencer ..... Greene
Katie Belle Spradling ..... Macon
Mrs. John Starke ..... Henry
Lannie Steadham ..... Lee
Vassie Steele ..... Geneva
Maye Steely ..... Geneva
W. R. Stephens ..... Lee
Ruth Stodghill ..... Lee
Dewey Elbridge Tanner ..... Mobile
Annie Myrtle Tatum ..... Lee

Anne Taylor ..... Marengo
Francis Marion Taylor ..... Lee
George Ellis Taylor ..... Jefferson
Annie Elizabeth Terrell ..... Lee
Jamie Marcus Thomason ..... Lamar
A. E. Thompson ..... Walker
Esther Thompson ..... Randolph
Exa Thornton ..... Tallapoosa
Lionel Earl Tisdale ..... Florida
Lovell Lack Turley ..... Missouri
Edward LeRoy Tuttle ..... Houston
Chester C. Van Osdol ..... Lowndes
Ross Franklin Wadkins ..... Lee
Mary Frank Wallace ..... Chambers
Elsie Waller ..... Macon
Mary Ruth Waller ..... Macon
James Hubert Walls ..... Marshall
Laura Watt ..... Lee
Walter Alexander Whatley ..... Lee
Robert Nelson White ..... Montgomery
Clinton Edward Williams ..... Crenshaw
E. D. Williams ..... Houston
Jessie Jay Williams ..... Clarke
Mrs. Jessie Jay Williams ..... Clarke
Thomas McCottry Williams ..... Montgomery
Robert Fleming Williford ..... Lee
Annie Merle Wills ..... Georgia
Permilla Wilson ..... Bullock
Samuel Andrew Wingard ..... Montgomery
Mary Belle Wise ..... Lee
Edward Reuben Wren ..... Talladega
Mrs. Ida Yarbrough ..... Talladega
Mary Lou Yeldell ..... Escambia
Braxton Zuber ..... Lee
Ruth Zuber ..... Lee

MILITARY ORGANIZATION

SESSION 1915-1916.

President.
CHARLES C. THACH.

Commandant.
COL. BENJAMIN S. PATRICK.

Surgeon.
J. H. DRAKE.

Bandmaster.
MAJOR A. L. THOMAS.

Regimental Staff.

Cadet Captain W. C. Payne, Adjutant.
Cadet Captain A. O. Jackson, Quartermaster.
Cadet Captain S. A. Wingard, Commissary.

Regimental Non-Commissioned Staff.

Cadet Sergeant W. T. Shinholser, Sergeant Major.
Cadet Sergeant H. M. Lewis, Quartermaster Sergeant.
Cadet Sergeant A. H. Dumas, Color Sergeant.
Cadet Sergeant J. W. Webb, Color Sergeant.
Cadet Sergeant L. L. Turley, Drum Major.

First Battalion.

Cadet Major C. E. Newman.
Cadet First Lieutenant J. D. Browne, Adjutant.
Cadet Second Lieutenant J. D. Russell, Commissary.
Cadet Sergeant E. L. Deal, Sergeant Major.

Cadet Captains.

Company A.	Company B.	Company C.	Company D.
V. J. Douglass	W. B. Persons	H. L. P. King	G. R. Corcoran

Cadet First Lieutenants.

W. H. Carter	G. R. Smith	H. L. Evans	R. M. Fricke
W. D. Crawford	G. L. Washington		

Cadet Second Lieutenants.

O. M. Schomburg			G. A. Miller

Cadet First Sergeants.

G. R. Bowling	P. A. Terrell	R. H. Thach	J. W. Johnston

Cadet Sergeants.

A. B. Chapman	W. R. Lassiter	J. R. Hines	F. H. Prendergast
T. Jordan	F. W. Burns	F. K. Simmons	H. B. Emerson
W. K. Askew	G. A. Kaufmann	D. A. Helmich	H. O. Burgess
	L. B. McCoy	H. H. House	W. M. Bruce

Cadet Corporals.

J.H.Witherington	J. A. Strozier	W.H.Withington	W. W. Allen
B. A. Storey	O. H. Schultz	J. T. Fowler	W. A. Guess
J. B. Mayes	O. L. Martin, Jr.	R. Lapsley	J. C. Ard
R. E. Davis	C. E. Snead	O. N. Massengale	J. S. N. Davis
W. C. Hearn	J. H. Martin	E. O. Duffey	A. J. Kirby
	J. M. Sparrow	J. R. Nesbitt	L. H. Heyman
	B. H. Brown	G. E. Burgin	

Second Battalion.

Cadet Major E. W. Smith.

Cadet First Lieutenant C. B. McManus, Adjutant.
Cadet Second Lieutenant W. H. Roberts, Commissary.
Cadet Sergeant L. M. Ware, Sergeant Major.

Cadet Captains.

Company E.	Company F.	Company G.	Company H.
W. M. Billing	A. E. Hayes	J. W. Andrews	E. S. Gatchell

Cadet First Lieutenants.

P. J. Edwards	J. C. Mohns	J. D. Ashcraft	G. D. Liddell
A. P. McCrary	B. W. Davis	J. G. Woodall	E. Slager

Cadet Second Lieutenants.

W. W. Wood		E. L. Tuttle	

Cadet First Sergeants.

J. P. Shaffer	R. M. House	H. P. Sparkes	J. M. Ward

Cadet Sergeants.

Y. G. Samford	J. C. Powell	G. E. Weber	W. L. Blanton
C. L. Isbell	J. P. Robertson	R. G. Carpenter	J. H. Scott
C. R. Carnes	A. B. Pimm	P. W. Matthews	H. W. Thomason
W. A. Stickney	J. J. Warren	H. B. Seybt	
		J. F. Pruett	

Cadet Corporals.

E. A. Phillips	J. H. Hamilton	W. S. Black	W. C. McKay
S. W. Hill	W.W.Sullivan,Jr.	E. E. Ruffin	W. C. Sills
R. E. Britnell	J. T. Hudson	R. T. Kernahan	E. C. Atkins
D. B. Van Pelt	G. L. Burleson	Y. Elizondo	S. B. Hooper
W. J. Ross	C. Savage	J. A. Peterson	G. B. Hawthorne.
		H. Herzberg	T. A. Sims
		W. L. Liddell	
		R. B. Ashe	

THE CADET BAND

Session 1915-16.

A. L. THOMAS, Bandmaster.

P. R. BIDEZ, Assistant.

Military Officers.

L. A. McCranie ..... Lieutenant
L. L. Turley, Drum Major ..... Sergeant
J. M. Kelly ..... Sergeant
J. A. Douglas ..... Sergeant
A. L. Scarbrough ..... Sergeant
R. R. McAdory ..... Corporal

Honorary Members.

S. J. Smith — D. A. Gammage — F. H. Haynie

Musicians.

Cornets.
L. A. McCranie
W. T. Mills
T. M. Brannon
E. C. Whitfield
L. G. Duggar
M. E. Lasater
M. B. Roberts

Flute and Piccolos.
J. A. Douglas
J. A. Duncan
J. D. Foster

Baritones.
H. P. Harris
W. M. Stewart

Basses.
F. H. Haynie
G. A. Mattison

Clarinets.
P. R. Bidez
S. J. Smith
E. H. Hargis
R. R. McAdory
A. L. Scarbrough

Trombones.
J. C. Lawton
R. P. Simmons
T. B. Gilbert
J. H. Owens

Altos.
D. A. Gammage
J. M. Kelly
W. S. Hackworth
A. T. Levie

Saxophone.
M. G. Crosthwait

Drummers.

Snare and Traps.
F. M. Taylor

Bass Drum.
C. B. Crow

Bugle Corps.

J. W. Anderson
E. T. Enslen
D. H. Holder
H. Riley
N. B. Wentworth
E. D. Williams

Cadets of the graduating class who were reported to the Adjutant General, U. S. Army, as having ranked highest in the Military Department:

1889	1890	1891
A. St.C. Dunstan	F. D. Milstead	L. E. Baker
B. H. Crenshaw	J. W. Bivins	C. C. Johnson
A. J. Burr	G. W. Emory	F. J. Bivins

1892
H. F. Dobbin
A. L. Jones
C. L. Brown

1893
Joel Dumas
C. H. Smith
J. F. Webb

1894
C. S. Andrews
P. P. McKeown
R. L. Dorsey

1895
S. L. Coleman
H. H. Smith
L. B. Gammon

1896
A. L. Alexander
W. L. Fleming
W. M. Williams

1897
P. G. Clark
G. M. Holley
G. N. Mitcham

1898
A. H. Clark
A. McB. Ransom
John Haralson

1899
I. F. McDonnell
A. H. Feagin
T. W. Wert

1900
E. M. Mason
H. P. Powell
C. W. Nixon

1901
A. F. Jackson
J. D. Foy
P. S. Haley

1902
W. D. Willis
J. E. D. Yonge
J. B. Garber

1903
H. E. Davis
H. M. Yonge
T. J. Dowdell

1904
J. McDuffie
B. L. Shi
Geo. Dunglinson, Jr.

1905
R. P. Boyd
R. M. McCulloh, Jr.
J. H. Paterson

1906
W. H. Foy
F. H. Mohns
M. A. Frazer

1907
N. B. McLeod
W. L. Purdue
G. F. Lipscomb

1908
S. A. Ellsberry
C. M. Howard
R. H. Liddell

1909
J. W. Powell
S. H. Richardson
T. Beasley

1910
D. M. Clements
C. C. Yonge
J. M. Spearman

1911
J. E. Davis
J. J. Cater
G. Lothrop

1912
S. R. Cruse
C. C. Thach, Jr.
F. L. Jenkins

1913
R. A. McGinty
D. L. Taylor
H. C. Hanlin

1914
R. E. Herring
W. B. Tisdale
E. F. Barry

1915
D. D. Gibson
C. A. Donehoo
W. F. Littleton

REQUIREMENTS FOR ADMISSION

APPLICATION.

All applicants for entrance to any department of the College should make application to the Registrar as early as possible before the opening of the session (September 13, 1916). Those who desire to be admitted by certificate should make application as soon as possible after their graduation from the High School. To all applicants a blank will be furnished which they are expected to fill out and file with the Registrar in advance of entrance.

All applicants for admission must present testimonials of good moral character, and those who come from other colleges must bring certificates of honorable discharge or furnish other testimonials of good moral character.

Entrance examinations will begin on Monday, September 11th. These examinations will be required of all students entering college for the first time, except those who bring certificates from accredited high schools or preparatory schools or from reputable colleges or universities.

REGISTRATION.

Students upon their arrival in Auburn should report promptly to the President.

All students are required to register on the first day of the session and on the opening day after the Christmas vacation. Registration at a later date involves additional administration work to the College and seriously affects the work of the student. An additional fee of $2.00 will be charged for registration after September 16th and January 3rd. No exception will be made to this regulation.

All students, whether applicants for regular or irregular courses, are required to report for classification to the Chairman of the Committee on Entrance Examinations who will give them cards of admission to the classes to which they are assigned.

ADMISSION TO THE FRESHMAN CLASS.

To enter the freshman class the applicant must be not less than fifteen years of age.

For unconditional admission to any bachelor's course, or to the Veterinary College, a student will be required to present fourteen entrance units.

A unit is defined as a high school or preparatory course of five periods of forty or forty-five minutes each, weekly, throughout the academic year of nine months. In science courses, two laboratory periods are counted as the equivalent of one

recitation period. Credits of less than one unit may be granted for courses that do not run full time. No more than four units will be given for one year's work in the high school.

Students who wish to enter the regular courses and are deficient in entrance requirements may enter and be classified as conditioned students provided their deficiencies do not exceed two units.

For entrance to any of the special courses that do not lead to degrees, applicants must give evidence of satisfactory preparation for pursuing the work as outlined in the catalogue. In accordance with the requirements of the American Conference of Pharmaceutical Faculties, for entrance to the two-year course in pharmacy leading to the degree of Graduate in Pharmacy, at least two years of high school work are required.

Of the fourteen units required for admission in full standing to the freshman class, seven and a half are prescribed as follows:—

Mathematics 3½ units:

High School Arithmetic.
Algebra, complete.
Plane and Solid Geometry.

English 3 units:

High School Grammar.
Rhetoric and Composition.
History of American or English Literature.
Classics.

High School History of the United States 1 unit.

ENTRANCE SUBJECTS.

Credit for admission will be given for any high school subject properly taught.

The principal subjects in which units may be offered for entrance are as follows:

Algebra	1½ units	English History	1 unit
Advanced Arithmetic	½ unit	Pedagogy	½ unit
Plane Geometry	1 unit	Psychology	½ unit
Solid Geometry	½ unit	French	1 to 2 units
Trigonometry	½ unit	German	1 to 2 units
High School Grammar	½ unit	Spanish	1 to 2 units
Rhetoric and Composition	1½ units	Latin Grammar	1 unit
History of American or English Literature	1 unit	Caesar	1 unit
Advanced U. S. History	1 unit	Cicero	1 unit
Ancient History	1 unit	Virgil	1 unit
Mediaeval and Modern History	1 unit	Greek	1 to 2 units
		Commercial Geography	½ unit
		Physical Geography	½ unit
		Agriculture	½ to 2 units
		Zoology	½ to 1 unit
		Physiology	½ to 1 unit

Biology	½ to 1 unit	Freehand Drawing	½ to 1 unit
Physics	½ to 1 unit	Music	½ to 3 units
Chemistry	½ to 2 units	Bookkeeping	½ to 1 unit
Botany	½ to 1 unit	Stenography and Typewriting	½ to 1 unit
Civil Government	½ to 1 unit	Domestic Science	½ to 2 units
Shop Work	½ to 2 units		
Mechanical Drawing	½ to 2 units		

ADMISSION BY CERTIFICATE.

Students presenting official statements from the schools listed below will be given entrance credit for all work completed. Those having 14 units will be admitted to full standing in the freshman class. Those having 12 units will be classed as conditioned freshmen, and the remaining 2 units must be removed by the beginning of their junior year. Not more than four units will be given for any one year's school work.

All students are strongly advised to complete the full course given in their schools before applying for admission to college.

Certificate Schools.

1. State Normal Schools.
2. District Agricultural Schools and County High Schools.
3. The following city, denominational, and private schools in Alabama:

Alabama City High School, Alabama City ..... J. D. Bradley
Alexander City High School, Alexander City .... J. M. Pearson
Andalusia High School, Andalusia ..... L. E. Brown
Anniston High School, Anniston ..... D. R. Murphy
Green University School, Athens ..... W. K. Green
Bay Minette High School, Bay Minette ..... S. M. Tharpe
Bessemer High School, Bessemer ..... A. A. Persons
Central High School, Birmingham ..... C. A. Brown
University High School, Birmingham ..... J. J. White
High School, Boaz ..... J. C. McAuley
Snead Seminary, Boaz ..... L. F. Corley
Brewton High School, Brewton ..... W. L. Porter
High School, Camp Hill ..... C. C. Moseley
Industrial Institute, Camp Hill ..... L. Ward
Carrolton High School, Carrolton ..... C. Wilbourn
High School, Citronelle ..... B. H. Johnston
High School, Collinsville ..... H. G. Tiller
Cordova High School, Cordova ..... J. W. Smith
High School, Cuba ..... M. E. Head
Decatur High School, Decatur ..... J. M. Collier
Demopolis High School, Demopolis ..... K. G. Hoover
Dothan High School, Dothan ..... J. V. Brown
High School, Elba ..... J. F. Scofield
High School, Ensley ..... R. L. Dimmitt
Eufaula High School, Eufaula ..... H. L. Upshaw

Eutaw High School, Eutaw ..... A. F. Jackson
High School, Florence ..... H. B. Norton
Gadsden High School, Gadsden ..... W. C. Griggs
Geneva High School, Geneva ..... J. E. Cheatham
Georgiana High School, Georgiana ..... P. B. Pepper
High School, Gordo ..... W. T. Snoddy
Greenville High School, Greenville ..... C. B. Gamble
Haleyville High School, Haleyville ..... L. L. James
Goodrich School, Huntsville ..... J. C. Goodrich
Huntsville High School, Huntsville ..... R. C. Johnston
LaFayette High School, LaFayette ..... F. T. Appleby
High School, Lanette ..... W. L. Leatherwood
Linden High School, Linden ..... W. T. Cardwell
High School, Livingston ..... R. K. Hood
Luverne High School, Luverne ..... W. G. Cameron
High School, Madison ..... T. G. Riddle
Mobile High School, Mobile ..... S. S. Murphy
University Military School, Mobile ..... J. T. Wright
Sidney Lanier High School, Montgomery ..... C. L. Floyd
Barnes' School, Montgomery ..... E. R. Barnes
Edgar's School for Boys, Montgomery ..... R. B. Edgar
University School, Montgomery ..... J. M. Starke
New Decatur High School, New Decatur ..... R. W. Cowart
Baptist Collegiate Institute, Newton ..... A. W. Tate
High School, Opelika ..... S. O. White
Opp High School, Opp ..... J. M. Ferris
High School, Ozark ..... E. T. Laney
High School, Pine Apple ..... B. B. McLenan
Roanoke High School, Roanoke ..... L. L. Vann
High School, Samson ..... W. T. Tiller
Selma High School, Selma ..... A. F. Harman
High School, Sheffield ..... W. P. Johnson
Slocomb High School, Slocomb ..... E. C. Palmer
High School, Stevenson ..... N. H. Price
High School, Sulligent ..... W. V. Luckly
Talladega High School, Talladega ..... D. A. McNeill
Thomasville High School, Thomasville ..... H. M. Morrow
Thorsby Institute, Thorsby ..... John Savage
Unity-Chilton Baptist High School, Thorsby ..... J. A. Pool
High School, Troy ..... Jno. R. McLure
High School, Tuscaloosa ..... J. W. Foster
Tuscumbia High School, Tuscumbia ..... J. F. Collins
Tuskegee High School, Tuskegee ..... R. E. Thompson
Union Springs High School, Union Springs ..... E. S. Pugh
High School, Uniontown ..... W. P. Champion

4. Schools in other States which are accredited to institutions of equal rank with the Alabama Polytechnic Institute.

ADVANCED STANDING.

Advanced standing in any subject is not given on preparatory school credits, and can be obtained only by an examination conducted by the professor of that subject.

Advanced standing is given for work done in other colleges of similar rank, and for work done by graduates of the State

VI. Course in Chemistry and Metallurgy.
VII. Course in Agriculture.
VIII. Course in Pharmacy.
IX. Course in Chemical Engineering.
X. General Course.

SHORTER COURSES.

XI. Two-Year Course in Mechanic Arts.
XII. Two-Year Course in Agriculture.
XIII. Two-Year Course in Pharmacy (Ph. G.)
XIV. Three-Year Course in Pharmacy (Ph. C.)
XV. Three-Year Course in Veterinary Medicine (D. V. M.)
XVI. Two-Year Course in Applied Electricity.
XVII. Course for Road Foremen and Inspectors.
XVIII. One-Year Course in Wireless Telegraphy.
XIX. Two-Year Course in Mining.

Special Course in Agriculture.—Young men over twenty-one years of age who desire to study agriculture will be permitted without examination to enter classes in agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied. They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus in one year acquire valuable practical knowledge of scientific agriculture.

Course I. includes the principles and applications of the sciences that directly relate to civil engineering, and is adapted to those who expect to enter that profession.

Course II. includes, besides the general principles and applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged to fit men for the profession of electrical engineering.

Course III. furnishes instruction in steam engineering, materials of construction, drawing and machine design, electrical engineering, together with laboratory work. The course is intended to qualify men to fill positions in the manufacturing industries.

Course IV. includes theoretical and practical instruction in geology, mineralogy; chemistry, civil and electrical engineering, as applied to mines, mapping, exploration; boring, ventilation; timbering, and all the operations pertaining to the profession of mining engineering.

Course V. has been arranged to give theoretical and practical knowledge of architecture in order to enable students to take advantage of office opportunities upon graduation. It embraces architectural drawing and design, history, and ornamental architectural engineering, and office practice.

Course VI. provides for thorough theoretical and practical instruction in pure and technical chemistry and metallurgy, and in scientific branches relating thereto. Students taking this course also pursue the study of German or French during the junior and senior years, and are thus prepared to utilize for reference and for study, scientific journals and works published in those languages.

Course VII. includes theoretical and practical instruction in those branches that relate to agronomy, horticulture, animal husbandry, botany, and entomology, and is especially adapted to those who intend to devote themselves to agricultural and horticultural pursuits.

Course VIII. includes, besides the general education of Course X. of the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Course IX. has been arranged for students who desire preparation for chemical engineering work with special reference to planning, construction and operation of plants employed in the chemical industries, such as manufacture of fertilizers, sugars, ceramics, oils, and fats, and their products, coal by-products, etc., etc.

Course X. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as those who intend ultimately to engage in teaching or in some commercial or professional business.

Courses XI., XII., XIII., XIV., XV., XVI., XVII., XVIII., and XIX., have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years and to take one of the regular degree courses.

DEGREES.

Each applicant for a degree must submit his application and course of study by the first of October in his senior year.

No degree will be conferred upon a candidate *in absentia* unless he is officially excused for providential reasons.

The degree Bachelor of Science will be granted to those students who satisfactorily complete one of the regular four-year courses.

A student who completes the work of the two-year course in pharmacy and submits a satisfactory thesis will be granted the degree of Graduate in Pharmacy (Ph. G.)

A student who completes the work of the three-year course in pharmacy and submits a satisfactory thesis, will be granted the degree of Pharmaceutical Chemist (Ph. C.)

A student who completes the work of the three-year course in veterinary medicine and submits a satisfactory thesis, will be granted the degree of Doctor of Veterinary Medicine (D. V. M.)

CERTIFICATES.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, with approval of the faculty, may be awarded a certificate of proficiency in that subject.

Students who complete one of the two-year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

No certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English. Every applicant for a certificate will be required to stand this special examination during the final year.

GRADUATE COURSES.

A more extended course of study may be taken by a graduate of this institution or of any college of equal grade. The completion of a course which leads to a post graduate degree of Master of Science requires one year's residence, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the faculty.

The candidate must also present to the faculty a satisfactory thesis showing independent investigation upon some subject pertaining to his course, and must pass an examination at the close of each term, on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the faculty.

The subject for the thesis must be submitted to the faculty for approval prior to January first, and the thesis given to the professor by May first.

Applicants for a post-graduate degree and special students in post-senior studies are subject to the same general regulations as other students, and *pay the same fees*, but are exempt from all military duty.

The following courses are prescribed for the degrees named:

1. *Master of Science.*—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class; or in special cases, with the approval of the faculty, a student may devote his full time to work in two departments, in each of which he has completed the full senior course.

2. *Master of Science in Pharmacy.*—Pharmacy and Chemistry.

PROFESSIONAL DEGREES IN ENGINEERING.

I. Degrees in Course.—The professional degree of Civil Engineer, Electrical Engineer, Mechanical Engineer, Chemical Engineer, or Engineer of Mines will be conferred upon graduate students upon the satisfactory completion of the course of study prescribed, a residence of one year at the institute being required for the completion of those courses.

A written application stating the degree desired and the course of study selected must be submitted to the faculty at the beginning of the session. A satisfactory thesis must be submitted by May first.

The following courses of study are prescribed for the degrees named:

Civil Engineer.—Civil Engineering and any two subjects selected from the following: Mathematics, analytical mechanics, mechanical engineering, electrical engineering, mining engineering, bacteriology.

Electrical Engineer.—Electrical engineering and mechanical engineering, or electrical engineering, mathematics and civil engineering.

Mechanical Engineer.—Mechanical engineering and machine design, or mechanical engineering, mathematics and mining engineering.

Chemical Engineer.—Electro-chemistry and advanced analytical or organic chemistry, together with one or more subjects selected from the following: Mechanical engineering, machine design, electrical engineering, mining engineering.

Engineer of Mines.—Graduate students who have completed the course in mining engineering may apply for this degree. The subjects to be pursued are mining engineering, civil engineering, and one other technical subject relating to mining and metallurgy, and approved by the faculty.

II. Degrees for Professional Work.—The above named professional degrees may be conferred upon graduates of the Alabama Polytechnic Institute in civil, electrical, mechanical,

chemical, and mining engineering, upon complying with the following requirements.

1. The candidate must have spent at least four full years in the practice of that branch of engineering in which he graduated.

2. An approved thesis must be submitted to the faculty not later than May 1st of the year in which the degree is sought.

3. The student must show that he has filled satisfactorily a responsible position in charge of important engineering work. Written testimonials from employers or clients will be accepted as evidence of satisfactory service.

4. A written application, stating the degree desired, and giving a report or outline of the professional work upon which the application is based, must be submitted not later than January 1st of the year in which the degree is to be granted.

III. Special Students in Graduate Studies.—Students who are not graduates, but are qualified in special subjects to prosecute graduate studies, and desire to prepare themselves more thoroughly for professional or special work in any of the departments of engineering, in chemistry, pharmacy, veterinary science, or other subjects in which instruction is given, may, when qualified, with approval of the faculty, enter this higher department of study and have all the privileges of post-graduate students.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

Two degrees will not be given the same year.

LABORATORIES.

Laboratory instruction constitutes an important feature in the course of education provided for the students and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. Civil Engineering, Field Work, Surveying, Etc.
II. Electrical Engineering, Telephone Engineering.
III. Mechanical Engineering.
IV. Mechanic Arts.
V. Mining Engineering, Mineralogy.
VI. Ore Dressing.
VII. Architecture.
VIII. Technical Drawing, Machine Design.
IX. Chemistry, Metallurgy.

X. AGRONOMY.
XI. BOTANY.
XII. PHARMACY, PHARMACEUTICAL CHEMISTRY.
XIII. HORTICULTURE.
XIV. ENTOMOLOGY.
XV. ANIMAL HUSBANDRY.
XVI. HISTORY, LATIN.
XVII. PHYSICS.
XVIII. MILITARY TACTICS.
XIX. VETERINARY SCIENCE, BACTERIOLOGY, PHYSIOLOGY.
XX. WIRELESS TELEGRAPHY.

NOTE.—Special work in Latin or History may be taken by students in the general course as a substitute for laboratory work.

ORGANIZATION

The instruction offered by the College is arranged in four divisions: (1) College of Engineering and Mines, (2) College of Agricultural Sciences, (3) Academic Departments, (4) College of Veterinary Medicine and Surgery.

I. The College of Engineering and Mines offers degree courses in (1) civil engineering, (2) electrical engineering, (3) mechanical engineering, (4) mining engineering, (5) chemical engineering, (6) chemistry and metallurgy, and (7) architecture.

In addition, students in these courses of the college of Engineering and Mines receive instruction in other departments as follows: Mechanical drawing and machine design, English, mathematics, history and Latin, modern languages, physics, chemistry, and military science and tactics.

II. The College of Agricultural Sciences offers regular degree courses in (1) agronomy, (2) chemistry, (3) botany, (4) horticulture and forestry, (5) animal husbandry, and (6) pharmacy; a three-year course in pharmacy; a two-year course in pharmacy; a two-year course in agriculture.

In addition students in the different departments of the College of Agricultural Sciences receive instruction in other departments as follows: English, history and Latin, modern languages, mathematics, mechanic arts, surveying, physics, geology and mining engineering, mechanical drawing and machine design, military science and tactics, and veterinary science.

III. A degree course is offered in the following subjects: Education, political economy, mental science, English, history and Latin, modern languages, mathematics, physics, military science and tactics.

In addition, students in the general course receive instruction in the following technical departments: Mechanic arts, drawing, geology, animal husbandry, chemistry, botany, and agronomy.

IV. The College of Veterinary Medicine and Surgery offers a three-year course leading to the degree of Doctor of Veterinary Medicine. This college comprises the following departments: Veterinary medicine, physiology, surgery, anatomy, therapeutics, pathology, histology, bacteriology, obstetrics, infectious diseases, meat inspection, milk inspection, and animal parasites.

COURSES OF INSTRUCTION

COURSES OF INSTRUCTION

(Note:—The numbers in the Courses of Instruction refer to the subjects as described under "Description of Courses," pages 93 to 170 of this catalogue. The following abbreviations are used: Ac., Academic Departments; Eng., College of Engineering and Mines; Agr., College of Agricultural Sciences; Vet., College of Veterinary Medicine and Surgery; H. Wk., Hours per Week.)

English, German, French, Latin or Spanish, may be taken as language in freshman, sophomore, junior and senior classes, provided there is no conflict in schedule.

A student who, on surgeon's certificate, is excused from any subject will be required to substitute other work approved by the faculty.

GENERAL COURSE.

FRESHMAN CLASS.

First Term.

	H. Wk.
English (Ac. 102a)	3
History (Ac. 201)	2
Latin (Ac. 209) or Spanish	3
Mathematics (Ac. 401)	5
Chemistry (Agr. 101)	4
Agriculture (Agr. 201, 801)	2
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 102b)	3
History (Ac. 201)	2
Latin (Ac. 209) or Spanish	4
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 102b)	3
History (Ac. 201)	2
Latin (Ac. 209) or Spanish	4
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

SOPHOMORE CLASS.

First Term.

	H. Wk.
Latin (Ac. 210) or Spanish	5
English (Ac. 103a)	3
History (Ac. 202)	2
Physics (Ac. 504)	3
†Mathematics (Ac. 403)	5
Botany (Agr. 301) or other Science	6
Chemical Lab'y (Agr. 110a) or other Lab'y	6
Military Drill (Ac. 600)	3

Second Term.

Latin (Ac. 210) or Spanish	5
English (Ac. 103c)	3
History (Ac. 202)	2
Physics (Ac. 504)	3
†Mathematics (Ac. 403)	5
Botany (Agr. 301) or other Science	6
Chemical Lab'y (Agr. 110a) or other Lab'y	6
Military Drill (Ac. 600)	3

Third Term.

Latin (Ac. 210) or Spanish	5
English (Ac. 103c)	3
History (Ac. 204)	2
Physics (Ac. 504)	3
†Mathematics (Ac. 404)	5
Botany (Agr. 301) or other Science	6
Chemical Lab'y (Agr. 110a) or other Lab'y	6
Military Drill (Ac. 600)	3

†With approval of faculty other work may be substituted.

JUNIOR CLASS.

First Term.

	H. Wk.
English (Ac. 107) (a)	3
Latin (Ac. 211) (a) or Civics	3
French (Ac. 301a) (a) or Spanish	4
German (Ac. 305a) (a)	4
Education	3
Physics (Ac. 504)	3
Military Tactics (Ac. 601)	1
History Lab'y (b) (Ac. 206)	6
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 107) (a)	3
Latin (Ac. 211) (a) or Civics	3
French (Ac. 301b) (a) or Spanish	3
German (Ac. 305b) (a)	3
Education	3
Physics (Ac. 504)	3
Military Tactics (Ac. 601)	1
History Lab'y (b) (Ac. 206)	6
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 107) (a)	3
Latin (Ac. 211) (a) or Civics	3
French (Ac. 301c) (a) or Spanish	4
German (Ac. 305c) (a)	4
Education	3
Physics (Ac. 504)	3
Military Tactics (Ac. 602)	1
History Lab'y (b) (Ac. 206)	6
Military Drill (Ac. 600)	3

(a) Education may be substituted for one language.

(b) The student may substitute laboratory of any department of natural science for which he may be qualified.

SENIOR CLASS.

First Term.

	H. Wk.
English (Ac. 109) (a)	2
Education	3
Latin (a) (Ac. 212) or Cons. History (Ac. 205)	3
French (Ac. 302a) or Spanish (Ac. 310) (a)	4
German (Ac. 306a) (a)	4
Geology (Eng. 441) (a)	2
History Lab'y (b) (Ac. 206)	6
Military Science (Ac. 603)	1

Second Term.

Economics (Ac. 2) (a)	2
Education	3
Latin (a) (Ac. 212) or Cons. History (Ac. 205)	3
French (Ac. 302b) or Spanish (Ac. 310) (a)	3
German (Ac. 306b) (a)	3
Geology (Eng. 441) (a)	2
History (b) (Ac. 206)	6
Military Science (Ac. 604)	1

Third Term.

Economics (Ac. 2) (a)	2
Education	3
Latin (a) (Ac. 212) or Cons. History (Ac. 205)	3
French (Ac. 302c) or Spanish (Ac. 310) (a)	4
German (Ac. 306c) (a)	4
Geology (Eng. 441) (a)	2
History Lab'y (b) (Ac. 206)	6
Military Science (Ac. 605)	1

(a) Education may be substituted for one language or for Geology.

(b) The student may substitute laboratory of any department of natural science for which he may be qualified.

COLLEGE OF ENGINEERING AND MINES.

The following studies in the freshman class are prescribed in the courses in civil, electrical, mechanical, mining and chemical engineering, and in architecture and chemistry and metallurgy:

FRESHMAN CLASS.

First Term.

	H. Wk.
English (Ac. 102a, c)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Agriculture (Agr. 201, 801)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

	H. Wk.
Second Term.	
English (Ac. 102a, b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Surveying (Eng. 102)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3
Third Term.	
English (Ac. 102a, b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Surveying (Eng. 102)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

CIVIL ENGINEERING.

Surveying (Eng. 105): Forty-eight hours per week for four weeks immediately after commencement in summer camp.

Sophomore Class.

	H. Wk.
First Term.	
English (Ac. 103a)	3
History (Ac. 202)	2
Mathematics (Ac. 403)	5
R. R. Surveying (Eng. 104)	5
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Mechanic Arts (Eng. 361)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3
Second Term.	
English (Ac. 103c)	3
History (Ac. 202)	2
Mathematics (Ac. 403)	5
R. R. Surveying (Eng. 106)	4
Applied Mechanics (Eng. 312)	3
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Mechanic Arts (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3
Third Term.	
English (Ac. 103c)	3
Mathematics (Ac. 404)	5
Higher Surveying (Eng. 103)	4
Applied Mechanics (Eng. 312)	3
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Mechanic Arts (Eng. 305)	5
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Surveying (Eng. 110): Forty-eight hours per week for four weeks immediately after commencement in summer camp.

Junior Class.

	H. Wk.
First Term.	
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Roads and Pavements (Eng. 107)	5
Structural Drafting (Eng. 112)	6
*Machine Shop (Eng. 374) or Mineralogy (Eng. 431)	4
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3
Second Term.	
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Strength of Materials (Eng. 322)	3
Road Materials Lab'y (Eng. 108)	4
Structural Drafting (Eng. 112)	5
*Machine Shop (Eng. 374) or Mineralogy (Eng. 432)	4
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3
Third Term.	
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Strength of Materials (Eng. 322)	3
Road and Street Improvements (Eng. 109)	4
Graphic Statics (Eng. 111)	5
*Machine Shop (Eng. 374) or Mineralogy (Eng. 433)	4
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

*And Practical Mechanics (Eng. 321).

SENIOR CLASS.

First Term.

	H. Wk.
English (Ac. 108)	2
Physics (Ac. 505)	2
Geology (Eng. 441)	2
Theory of Structures (Eng. 113)	5
Railroad Engineering (Eng. 115) or Bacteriology	3
Bridge and Structural Design (Eng. 114)	9
Military Science (Ac. 603)	1
Thesis (Eng. 120)	4

Second Term.

Economics (Ac. 2)	2
Physics (Ac. 505)	2
Geology (Eng. 441)	2
Theoretical Hydraulics (Eng. 116)	5
Concrete and Masonry Construction (Eng. 118)	3
Military Science (Ac. 604)	1
Mechanical Engineering Lab. (Eng. 382)	4
Thesis (Eng. 120)	9

Third Term.

Economics (Ac. 2)	2
Astronomy (Ac. 506)	2
Geology (Eng. 441)	3
Sanitary Engineering (Eng. 119)	5
Masonry and Concrete Construction (Eng. 118)	3
Practical Hydraulics (Eng. 117)	3
Bridge and Structural Design (Eng. 114)	9
Military Science (Ac. 605)	1

ELECTRICAL ENGINEERING

SOPHOMORE CLASS.

First Term.

English (Ac. 103a)	3
History (Ac. 202)	2
Mathematics (Ac. 403)	5
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Shop Work (Eng. 361)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term.

	H. Wk.
English (Ac. 103c)	3
History (Ac. 202)	2
Applied Mechanics (Eng. 312)	3
Mathematics (Ac. 403)	5
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Shop Work (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 103c)	3
Mathematics (Ac. 404)	5
Applied Mechanics (Eng. 312)	3
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Shop Work (Eng. 362)	5
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

JUNIOR CLASS.

First Term.

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 201)	3
Electrical Meas. (Eng. 205)	1
Kinematics (Eng. 604)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 321)	1
Electrical Lab'y (Eng. 206)	4
Shop Work (Eng. 371)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 202)	3
Electrical Meas. (Eng. 205)	1
Strength of Materials (Eng. 322)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 321)	1
Electrical Lab'y (Eng. 207)	4
Shop Work (Eng. 371)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.

	H. Wk.
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Electrical Eng. (Eng. 203)	3
Electrical Tests (Eng. 205)	1
Strength of Materials (Eng. 322)	3
Machine Design (Eng. 606)	4
Practical Mechanics (Eng. 321)	1
Electrical Lab'y (Eng. 208)	4
Shop Work (Eng 371)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

SENIOR CLASS.

First Term.

English (Ac. 108)	2
Physics (Ac. 505)	2
Electrical Eng. (Eng. 210)	3
Electrical Lab'y (Eng. 213)	4
Electrical Desig'ng (Eng. 211)	2
Telephone Eng. (Eng. 215)	2
Telephone Lab'y (Eng. 216)	2
Power Plant Eng. (Eng. 331)	5
Mech. Eng. Lab'y (Eng. 381)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 603)	1

Second Term.

Economics (Ac. 2)	2
Electrical Designing (Eng. 211)	2
Electrical Eng. (Eng. 211)	3
Electrical Lab'y (Eng. 213)	4
Physics (Ac. 505)	2
Telephone Eng. (Eng. 215)	2
Telephone Lab'y (Eng. 216)	2
Street Railways (Eng. 214)	2
Thermodynamics (Eng. 332)	5
Mech. Eng. Lab. (Eng. 382)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 604)	1

Third Term.

Economics (Ac. 2)	2
Astronomy (Ac. 506)	2
Electrical Eng. (Eng. 212)	5
Electrical Eng. Lab. (Eng. 213)	4
Street Railways (Eng. 214)	2
Specifications and Contracts (Eng. 219)	2
Thermodynamics (Eng. 332)	5
Mech. Eng. Lab. (Eng. 383)	4
Machine Design (Eng. 607)	1
Machine Design (Eng. 609)	3
Military Science (Ac. 605)	1

MECHANICAL ENGINEERING

SOPHOMORE CLASS.

First Term.

English (Ac. 103a)	3
History (Ac. 202)	2
Mathematics (Ac. 403)	5
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Shop Work (Eng. 361)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 103c)	3
History (Ac. 202)	2
Mathematics (Ac. 403)	5
Applied Mechanics (Eng. 312)	3
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Shop Work (Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 103c)	3
Mathematics (Ac. 404)	5
Applied Mechanics (Eng. 312)	3
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Shop Work (Eng. 362)	5
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

JUNIOR CLASS.

First Term.

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Kinematics (Eng. 604)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Electrical Eng. (Eng. 204)	3
Elec. Eng. Lab'y (Eng. 206)	4
Practical Mechanics (Eng. 321)	1

	H. Wk.
Shop Work (Eng. 371)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Strength of Materials (Eng. 322)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Electrical Eng. (Eng. 204)	3
Elec. Eng. Lab'y (Eng. 207)	4
Practical Mechanics (Eng. 321)	1
Shop Work (Eng. 371)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Strength of Materials (Eng. 322)	3
Graphic Statics (Eng. 605)	1
Machine Design (Eng. 606)	4
Electrical Eng. (Eng. 204a)	3
Elec. Eng. Lab'y (Eng. 208)	4
Practical Mechanics (Eng. 321)	1
Shop Work (Eng. 371)	4
Laboratory (Eng. 377)	2
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

SENIOR CLASS.

First Term.

English (Ac. 108)	2
Physics (Ac. 505)	2
Electrical Eng. (a) (Eng. 217)	3
Heating and Ventilating (Eng. 334)	2
Power Plant Eng. (Eng. 331)	5
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Elec. Eng. Lab'y (Eng. 218)	4
Mech. Eng. Lab'y (Eng. 381)	4
Thesis (Eng. 384)	2
Military Science (Ac. 603)	1

Second Term.

Economics (Ac. 2)	2
Physics (Ac. 505)	2
Hydraulics (Eng. 110)	5
Thermodynamics (Eng. 332)	5
Refrigeration (Eng. 336)	2
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Mech. Eng. Lab'y (Eng. 382)	4
Thesis (Eng. 384)	2
Military Science (Ac. 604)	1

Third Term.

Economics (Ac. 2)	2
Astronomy (Ac. 506)	2
Thermodynamics (Eng. 332)	5
Metallurgy (Agr. 104b)	3
Contracts and Specifications (Eng. 219)	2
Refrigeration (Eng. 336)	2
Machine Design (Eng. 607)	1
Machine Design (Eng. 608)	6
Mech. Eng. Lab'y (Eng. 383)	4
Thesis (Eng. 384)	4
Military Science (Ac. 605)	1

(a) Course 113 in civil engineering may be substituted.

MINING ENGINEERING

Surveying (Eng. 105):

Forty-eight hours per week for four weeks immediately after commencement in summer camp.

SOPHOMORE CLASS.

First Term.

English (Ac. 103a)	3
History (Ac. 202)	2
Mathematics (Ac. 403)	5
R. R. Surveying (Eng. 104)	5
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Mechanic Arts (Eng. 361)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 103c)	3
History (Ac. 202)	2
Mathematics (Ac. 403)	5
Applied Mechanics (Eng. 312)	3
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Mechanic Arts(Eng. 362)	4
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

	H. Wk.
Third Term.	
English (Ac. 103c)	3
Mathematics (Ac. 404)	5
Applied Mechanics (Eng. 312)	3
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Mechanic Arts (Eng. 362)	5
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

JUNIOR CLASS.

First Term.	
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Mine Surveying (Eng. 401)	5
Geology (Eng. 435)	2
Drawing (Eng. 403)	4
Mineralogy Laboratory (Eng. 431)	4
Chemical Lab'y (Agr. 110a)	6
Practical Mechanics (Eng. 321)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term.	
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Applied Mechanics (Eng. 312)	3
Geology (Eng. 435)	2
Drawing (Eng. 403)	4
Mining Engineering (Eng. 402)	5
Mineralogy Laboratory (Eng. 432)	4
Chemical Lab'y (Agr. 110a)	6
Practical Mechanics (Eng. 321)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.	
English (Ac. 107)	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Applied Mechanics (Eng. 312)	3
Geology (Eng. 435)	2
Drawing (Eng. 403)	4
Mining Engineering (Eng. 402)	5
Mineralogy Laboratory (Eng. 433)	4
Chemical Lab'y (Agr. 110a)	6
Practical Mechanics (Eng. 321)	1
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Summer course, Engineering 404. Taken immediately after commencement.

SENIOR CLASS.

First Term.	
English (Ac. 108)	2
Physics (Ac. 505)	2
Economic Geology (Eng. 442)	2
Mining Engineering (Eng. 411)	3
Electrical Eng. (Eng. 204)	2
*Machine Shop (Eng. 374)	4
Metallurgy (Agr. 104)	3
Drawing (Eng. 412)	3
Military Science (Ac. 603)	1
Assaying (Agr. 110d)	8
Metallurgical Lab'y (Eng. 413)	3

Second Term.	
Economics (Ac. 2)	2
Physics (Ac. 505)	2
Hydraulics (Eng. 110)	5
Mining Engineering (Eng. 411)	3
Electrical Eng. (Eng. 204)	2
*Machine Shop (Eng. 374)	4
Metallurgy (Agr. 104)	3
Drawing (Eng. 412)	3
Military Science (Ac. 604)	1
Assaying (Agr. 110d)	8
Metallurgical Lab'y (Eng. 413)	3

Third Term.	
Economics (Ac. 2)	2
Astronomy (Ac. 506)	2
Economic Geology (Eng. 443)	2
Mining Engineering (Eng. 411)	3
*Machine Shop (Eng. 374)	4
Metallurgy (Agr. 104b)	3
Drawing (Eng. 412)	3
Military Science (Ac. 605)	1
Assaying (Agr. 110d)	8
Metallurgical Lab'y (Eng. 413)	3

*Electrical laboratory may be substituted.

ARCHITECTURE.

Sophomore Class.

First Term.

	H. Wk.
Architectural Drawing (Eng. 501)	6
Freehand Drawing (Eng. 511)	2
Building Construction (Eng. 521)	4
Descriptive Geometry (Eng. 602)	4
Mathematics (Ac. 403)	5
English (Ac. 103a)	3
Physics (Ac. 504)	3
History (Ac. 202)	2
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Second Term.

Architectural Drawing (Eng. 501)	6
Freehand Drawing (Eng. 511)	2
Building Construction (Eng. 521)	4
Descriptive Geometry (Eng. 602)	4
Mathematics (Ac. 403)	5
English (Ac. 103c)	3
Physics (Ac. 504)	3
History (Ac. 202)	2
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Third Term.

Architectural Drawing (Eng. 501)	6
Freehand Drawing (Eng. 511)	2
Building Construction (Eng. 521)	4
Perspective (Eng. 542)	4
Descriptive Geometry (Eng. 602)	4
Mathematics (Ac. 404)	5
English (Ac. 103c)	3
Physics (Ac. 504)	3
Physical Laboratory (Ac. 502)	2
Military Drill (Ac. 600)	3

Junior Class.

First Term.

	H. Wk.
Architectural Drawing and Design (Eng. 502)	10
Building Cons. (Eng. 522)	7
Freehand Drawing (Eng. 512)	4
History of Architecture (Eng. 532)	4
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
French (Ac. 301a)	4
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term.

Architectural Drawing and Design (Eng. 502)	10
Building Cons. (Eng. 522)	7
Freehand Drawing (Eng. 522)	4
History of Architecture (Eng. 532)	4
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
French (Ac. 301b)	3
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.

Architectural Drawing and Design (Eng. 502)	10
Building Cons. (Eng. 522)	7
Freehand Drawing (Eng. 512)	4
History of Architecture (Eng. 532)	4
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
French (Ac. 301c)	4
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Senior Class.

First Term.

Architectural Drawing and Design (Eng. 503)	14
Freehand Drawing (Eng. 512)	4
History of Architecture (Eng. 532)	4
French (Ac. 302a)	4
Theory of Structures (Eng. 113)	5
Structural Design (Eng. 114a)	2
English (Ac. 108)	2
Physics (Ac. 505)	2
Military Science (Ac. 603)	1

Second Term

	H. Wk.
Architectural Drawing and Design (Eng. 503)	14
Freehand Drawing (Eng. 513)	4
History of Architecture (Eng. 533)	4
French (Ac. 302b)	3
Concrete and Masonry Construction (Eng. 118)	3
Structural Design (Eng. 114a)	2
Economics (Ac. 2)	2
Physics (Ac. 505)	2
Military Science (Ac. 604)	1

Third Term.

Architectural Drawing and Design (Eng. 503a)	14
Freehand Drawing (Eng. 513)	4
History of Architecture (Eng. 533)	4
French (Ac. 302c)	4
Masonry and Foundations (Eng. 118)	3
Structural Design (Eng. 114a)	4
Economics (Ac. 2)	2
Military Science (Ac. 605)	1

CHEMICAL ENGINEERING.

Sophomore Class.

First Term.

English (Ac. 103a)	3
History (Ac. 202)	2
Mathematics (Ac. 403)	5
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Mechanic Arts (Eng. 361)	4
Chem. Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 103c)	3
History (Ac. 202)	2
Mathematics (Ac. 403)	5
Descriptive Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Applied Mech. (Eng. 312)	3
Mechanic Arts (Eng. 362)	4
Chem. Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3
English (Ac. 103c)	3

Third Term.

	H. Wk.
Mathematics (Ac. 404)	5
Desc. Geometry (Eng. 602)	4
Physics (Ac. 504)	3
Applied Mechanics (Eng. 312)	3
Mechanic Arts (Eng 362)	5
Chem. Laboratory (Agr. 110a)	6
Military Drill (Ac. 600)	3

Junior Class.

First Term.

English (Ac. 107) or French or German	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	4
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 107) or French or German	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	4
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 107) or French or German	3
Mathematics (Ac. 405)	5
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	2
Industrial Chem. (Agr. 102a)	4
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	4
Military Drill (Ac. 600)	3

SENIOR CLASS.

First Term.

	H. Wk.
English (Ac. 108)	2
Physical Chem. (Agr. 108)	2
German or French	3
Economic Geology (Eng. 442)	2
Metallurgy (Agr. 104)	3
Theoretical Chem. (Agr. 107)	2
Electrical Eng. (Eng. 204)	2
Military Science (Ac. 603)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 431)	4
Metallurgical Lab'y (Eng. 413)	3

Second Term.

Economics (Ac. 2)	2
Physical Chem. (Agr. 108)	2
German or French	3
Metallurgy (Agr. 104)	3
Electrical Eng. (Eng. 204)	2
Gas Engines (Eng. 335)	2
Engineering Chem. (Agr. 106)	2
Military Science (Ac. 604)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 432)	4
Metallurgical Lab'y (Eng. 413)	3

Third Term.

Economics (Ac. 2)	2
Physical Chem. (Agr. 108)	2
German or French	3
Economic Geology (Eng. 443)	2
Metallurgy (Agr. 104b)	3
Electrical Eng. (Eng. 204a)	2
Engineering Chem. (Agr. 106)	2
Military Science (Ac. 605)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 433)	4
Metallurgical Lab'y (Eng. 413)	3

CHEMISTRY AND METALLURGY.

SOPHOMORE CLASS.

Students in the sophomore class in this course may take either the course prescribed for sophomore students in chemical engineering or that prescribed for students pursuing the General Course.

JUNIOR CLASS.

First Term.

	H. Wk.
English (Ac. 107)	3
Bacteriology (Vet. 108)	6
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 107)	3
Bacteriology and Bact. Lab'y (Vet. 108)	6
Physics (Ac. 504)	3
Organic Chem. (Agr. 103a)	3
Industrial Chem. (Agr. 102a)	3
Geology (Eng. 435)	2
Military Science (Ac. 601)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 107)	3
Physics (Ac. 504)	3
Organic Chem (Agr. 103a)	2
Industrial Chem. (Agr. 102a)	4
Geology (Eng. 435)	2
Military Science (Ac. 602)	1
Chemical Lab'y (Quant. Agr. 110b)	9
Chemical Lab'y (Org. Agr. 110f)	6
Military Drill (Ac. 600)	3

SENIOR CLASS.

First Term.

English (Ac. 108)	2
Physical Chem. (Agr. 108)	2
German or French	3
Economic Geology (Eng. 442)	2
Metallurgy (Agr. 104)	3
Theoretical Chem. (Agr. 107)	2
Advanced Inorganic Chem. (Agr. 111)	2
Military Science (Ac. 603)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy (Lab'y (Eng. 401)	4
Metallurgical Lab'y (Eng. 413)	3

Second Term.

	H. Wk.
Economics (Ac. 2)	2
Physical Chemistry (Agr. 108)	2
German or French	3
Metallurgy (Agr. 104)	3
Advanced Inorganic Chemistry (Agr. 111)	2
Engineering Chem. (Agr. 106)	2
Military Science (Ac. 604)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 401)	4
Metallurgical Lab'y (Eng. 413)	3

Third Term.

Economics (Ac. 2)	2
Physical Chemistry (Agr. 108)	2
German or French	3
Economic Geology (Eng. 443)	2
Metallurgy (Agr. 104b)	3
Advanced Inorganic Chemistry (Agr. 111)	2
Engineering Chem. (Agr. 106)	2
Military Science (Ac. 605)	1
Chemical Lab'y and Assaying (Agr. 110c)	9
Mineralogy Lab'y (Eng. 401)	4
Metallurgical Lab'y (Eng. 412)	3

TWO YEAR COURSE IN MECHANIC ARTS.

First Year.

First Term.

English (special course)	5
History (special course)	2
Mathematics (special course)	10
Drawing (Eng. 601)	5
Shop Work (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term.

English (special course)	5
History (special course)	2
Mathematics (special course)	10
Drawing (Eng. 601)	5
Shop Work (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term.

English (special course)	5
History (special course)	2
Mathematics (special course)	10
Drawing (Eng. 601)	5
Shop Work (Eng. 353)	6
Military Drill (Ac. 600)	3

Second Year.

First Term.

	H. Wk.
English (special course)	3
Mathematics (special course)	5
Chemistry (Agr. 101)	4
Engines and Boilers (Eng. 3S1)	3
Shop Work (Eng. 361, 371)	12
Military Drill (Ac. 600)	3

Second Term.

Mechanics (Eng. 312)	3
English (special course)	3
Mathematics (special course)	5
Chemistry (Agr. 101)	4
Shop Work (Eng. 362, 371)	12
Military Drill (Ac. 600)	3

Third Term.

Mechanics (Eng. 312)	3
English (special course)	3
Mathematics (special course)	5
Chemistry (Agr. 101)	4
Shop Work (Eng. 362, 371)	13
Military Drill (Ac. 600)	3

TWO YEAR COURSE IN APPLIED ELECTRICITY.

First Year.

First Term.

English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Engines and Boilers (Eng. 3S1)	3
Drawing (Eng. 601)	5
Electrical Lab'y (Eng. 206)	4
Shop Work (Eng. 361)	4
Power Plant (Eng. 220)	4

Second Term.

English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Gas Engines (Eng. 3S2)	3
Drawing (Eng. 601)	5
Shop Work (Eng. 362)	4
Power Plant (Eng. 220)	4

Third Term.

English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 205)	3
Trans. Power (Eng. 3S3)	3
Drawing (Eng. 601)	5

	H. Wk.
Electrical Lab'y (Eng. 208)	4
Shop Work (Eng. 362)	4
Power Plant (Eng. 220)	4

SECOND YEAR.

First Term.

English (special course)	3
Mathematics (Ac. 401)	5
Electrical Eng. (Eng. 217)	4
Kinematics (Eng. 604)	3
Practical Mech. (Eng. 321)	1
Drawing (Eng. 606)	4
Electrical Lab'y (Eng. 218)	4
Shop Work (Eng. 362)	4
Power House (Eng. 220)	4

Second Term.

English (special course)	3
Electrical Eng. (Eng. 217a)	4
Applied Mechanics (Eng. 312)	3
Practical Mechanics (Eng. 321)	1
Drawing (Eng. 606)	4
Electrical Lab'y (Eng. 218a)	4
Shop Work (Eng. 374)	4
Power House (Eng. 220)	4

Third Term.

English (special course)	3
Street Railways (Eng. 214)	2
Electrical Eng. (Eng. 217b)	4
Applied Mechanics (Eng. 312)	3
Practical Mechanics (Eng. 321)	1
Drawing (Eng. 606)	4
Electrical Lab'y (Eng. 218b)	4
Shop Work (Eng. 374)	4
Power House (Eng. 220)	4

SPECIAL COURSE FOR ROAD FOREMEN AND INSPECTORS.

First Term.

Mathematics (special course)	5
Drawing (Eng. 601)	5
Surveying (Eng. 102)	5
Roads and Pavements (Eng. 107)	5
Mechanic Arts (Eng. 351 or 361)	6

Second Term.

Mathematics (special course)	5
Drawing (Eng. 601)	5
Surveying (Eng. 102)	5
Roads and Pavements (special course)	3

	H. Wk.
Road Materials Lab'y (Eng. 108)	3
Mechanic Arts (Eng. 352 or 362)	6

Third Term.

Mathematics (special course)	5
Drawing (Eng. 601)	5
Surveying (Eng. 102)	5
Roads and Pavements (special course)	3
Road and Street Improvements (Eng. 109)	3

SPECIAL ONE-YEAR COURSE IN WIRELESS TELEGRAPHY.

First Term.

English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Engines and Boilers (Eng. 3S1)	3
Drawing (Eng. 601)	5
Electrical Lab'y (Eng. 206)	4
Shop Work (Eng. 361)	4
Wireless Telegraphy (Eng. 221)	4

Second Term.

English (special course	5
Mathematics (special course)	5
Electrical Eng. (Eng. 204)	3
Gas Engines (Eng. 3S2)	3
Drawing (Eng. 601)	5
Electrical Lab'y (Eng. 207)	4
Shop Work (Eng. 362)	4
Wireless Telegraphy (Eng. 221)	4

Third Term.

English (special course)	5
Mathematics (special course)	5
Electrical Eng. (Eng. 205)	3
Trans. Power (Eng. 3S3)	3
Drawing (Eng. 601)	5
Electrical Lab'y (Eng. 208)	4
Shop Work (Eng. 362)	4
Wireless Telegraphy(Eng. 221)	4

TWO-YEAR MINING COURSE.

FIRST YEAR.

First Term.

English (special course)	5
Mathematics (Ac. 401)	5

	H. Wk.
Mining (Eng. 401)	5
Mineralogy (Eng. 431)	4
Drawing (Eng. 601)	5
Military Drill (Ac. 600)	3
Second Term.	
English (special course)	5
Mathematics (Ac. 402)	5
Mining (Eng. 402)	5
Surveying (Eng. 102)	5
Mineralogy (Eng. 432)	4
Drawing (Eng. 601)	5
Military Drill (Ac. 600)	3
Third Term.	
English (special course)	5
Mathematics (Ac. 402)	5
Mining (Eng. 402)	5
Surveying (Eng. 103)	5
Mineralogy (Eng. 433)	4
Drawing (Eng. 601)	5
Military Drill (Ac. 600)	3

SECOND YEAR.

	H. Wk.
First Term.	
English (special course)	3
Mining (Eng. 411)	3
Elec. Eng. (Eng. 204)	3
Surveying (Eng. 104)	5
Eng. Geology (Eng. 436)	2
Practical Mech. (Eng. 321)	1
Shop Work (Eng. 361)	4
Electrical Lab'y	4
Drawing	4
Military Drill (Ac. 600)	3
Second Term.	
English (special course)	3
Mining (Eng. 411)	3
Elec. Eng. (Eng. 204)	3
Applied Mech. (Eng. 312)	3
Eng. Geology (Eng. 436)	2
Practical Mech. (Eng. 321)	1
Shop Work (Eng. 362)	4
Electrical Lab'y	4
Drawing	4
Military Drill (Ac. 600)	3
Third Term.	
English (special course)	3
Mining (Eng. 411)	3
Elec. Eng. (Eng. 217b)	4
Applied Mech. (Eng. 312)	3
Eng. Geology (Eng. 436)	2
Practical Mech. (Eng. 321)	1
Shop Work (Eng. 362)	4
Electrical Lab'y	4
Drawing	4
Military Drill (Ac. 600)	3

COLLEGE OF AGRICULTURAL SCIENCES.

AGRICULTURE.

FRESHMAN CLASS.

First Term.	
English (Ac. 102a, c)	5
History (Ac. 201)	2
Mathematics (Ac. 401)	5
Agriculture (Agr. 201, 801)	2
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3
Second Term.	
English (Ac. 102a, b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Surveying (Eng. 102)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3
Third Term.	
English (Ac. 102a,b)	5
History (Ac. 201)	2
Mathematics (Ac. 402)	5
Surveying (Eng. 102)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

SOPHOMORE CLASS.

First Term.	
English (Ac. 103a)	3
History (Ac. 202)	2
Corn (Agr. 202)	4
Zoology (Agr. 701)	5
Botany (Agr. 301)	6
Physics (Ac. 504)	3
Organic Chemistry (Agr. 103b)	3
Stock Judging (Agr. 802)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

	H. Wk.
Second Term.	
English (Ac. 103c)	3
History (Ac. 202)	2
Zoology (Agr. 701)	5
Botany (Agr. 301)	6
Physics (Ac. 504)	3
Stock Judging (Agr. 803)	4
Farm Accounts (Agr. 203)	2
Organic Chemistry (Agr. 103b)	3
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3
Third Term.	
English (Ac. 103c)	3
Botany (Agr. 301)	6
Physics (Ac. 504)	3
Horticulture (Agr. 601)	6
Agriculture (Agr. 203)	4
Agricultural Chem. (Agr. 105)	4
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

JUNIOR CLASS.

First Term.	
English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Dairying (Agr. 804)	4
Agr. Bacteriology (Agr. 303)	6
*Veterinary Science (a) (Vet. 102)	5
Agriculture (Agr. 220)	4
Horticulture (Agr. 602)	2
Chemical Lab'y (a) (Agr. 110b)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3
Second Term.	
English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Botany (Agr. 304)	6
*Veterinary Science (a) (Vet. 102)	5
An. Husbandry (Agr. 805)	4
Horticulture (Agr. 603, 604)	6
Geology (Eng. 434)	4
Chemical Lab'y (a) (Agr. 110b)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3
Third Term.	
English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Botany (Agr. 304)	6
*Veterinary Science (a) (Vet 102)	5
Animal Husbandry (Agr. 806)	4
Agriculture (Agr. 205)	4
Horticulture (Agr. 603)	4
Chemical Lab'y (a) (Agr. 110b)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

(a) Education may be substituted.

*Required of students who specialize in animal husbandry.

SENIOR CLASS.

The studies of the course in Agriculture are divided into five groups, as follows:

Group "A," agronomy: Gives special prominence to crops, soils, and farm machinery.

Group "B," horticulture: Gives special reference to fruit growing, trucking, greenhouse management, and landscape gardening.

Group "C," animal husbandry: Gives special prominence to all work pertaining to live stock.

Group "D," agricultural chemistry: Especially designed to prepare students for experiment station and fertilizer control work.

Group "E," botany: Designed to train students for station work or to pursue advanced work in botany.

The elective work in each group must be approved at the beginning of the senior year by the president and the professor in charge, and with the required work must aggregate at least twenty-one hours, counting two hours laboratory equal to one hour. At least nineteen hours of this work must be taken in each term; and the maximum for any term is a total of twenty-five such hours in all classes, except by special permission of the faculty.

The giving of an elective course will be optional with the professor in charge unless it be elected by at least four students.

GROUP "A," AGRONOMY.

First Term.

	H. Wk.
Agr. and Agr. Lab. (Agr. 206)	4
Entomology (Agr. 702, 703)	5
Military Science (Ac. 603)	1
German (a) (Ac. 305a)	4
Thesis (Agr. 209)	2

Second Term.

Agriculture (Agr. 207)	2
Farm Machinery (Agr. 222)	2
Forestry (Agr. 608)	5
Military Science (Ac. 604)	1
German (a) (Ac. 305b)	3
Thesis (Agr. 209)	2

Third Term.

Agr. and Agr. Lab. (Agr. 208)	4
Entomology (Agr. 704, 705)	5
Military Science (Ac. 605)	1
German (a) (Ac. 305c)	4
Thesis (Agr. 209)	2

(a) French may be substituted.

Electives: The additional work is to be selected from the following subjects:

ELECTIVES FOR SENIOR GROUPS.

First Term.

Soils and Soils Lab. (Agr. 211)	5
Cotton (Agr. 206)	4
Animal Husbandry (Agr. 807, 808)	6
Horticulture (Agr. 605)	5
Canning (Agr. 606)	3
Botany (Agr. 305)	6
Vet Science (Vet. 102)	5
Industrial Chem. (Agr. 102a)	3
French (Ac. 302a)	4
Physics (Ac. 505)	2
Chemical Lab'y (Agr. 110b)	6
Mathematics (Ac. 403 & 404, or 405)	5
Education	3

Second Term.

Soils and Soils Lab. (Agr. 211)	5
Agriculture (Agr. 207)	4
Animal Husbandry (Agr. 808, 809, 811, 813)	6
Horticulture (Agr. 605, 606)	5
Botany (Agr. 305)	6
Botany (Agr. 306)	6
Vet. Science (Vet. 102)	5
Industrial Chem. (Agr. 102a)	3
French (Ac. 302b)	3
Chemical Lab'y (Agr. 110b)	6
Mathematics (Ac. 403 & 404, or 405)	5
Forestry (Agr. 608)	5
Education	3

Third Term.

Soils and Soils Lab. (Agr. 211)	5
Agriculture (Agr. 208)	4
Animal Husbandry (Agr. 810, 818)	4
Horticulture (Agr. 605, 609)	7
Botany (Agr. 307)	6
Vet. Science (Vet. 102)	5
Industrial Chem. (Agr. 102a)	3
French (Ac. 302c)	4
Chemical Lab'y (Agr. 110)	6
Mathematics (Ac. 403 & 404, or 405)	5
Education	3

GROUP "B," HORTICULTURE.

First Term.

Horticulture (Agr. 605, 606)	8
Entomology (Agr. 702, 703)	5
Military Science (Ac. 603)	1
Soils (Agr. 211)	5
German (a) (Ac. 306a)	3
Thesis (Agr. 611)	

Second Term.

Horticulture (Agr. 605, 607)	6
Forestry (Agr. 608)	4
Military Science (Ac. 604)	1
Soils (Agr. 211)	5
German (a) (Ac. 306b)	4
Thesis (Agr. 610)	

Third Term.

Horticulture (Agr. 605, 609)	7
Entomology (Agr. 704, 705)	5
Military Science (Ac. 605)	1
Soils (Agr. 211)	5
German (a) (Ac. 306c.)	4
Thesis (Agr. 610)	

(a) French or English and Political Economy and one additional subject may be substituted.

Electives: The additional work is to be selected from the elective subjects listed above.

GROUP "C," ANIMAL HUSBANDRY.

Animal Hus. (Agr. 807, 808, 812) ----------7
Animal Hus. Lab'y (Agr. 812) 2
Entomology (Agr. 702, 703) ---5
Military Science (Ac. 603) ----1
German (a) (Ac. 306a) -------4
Thesis ----------

Second Term.

Animal Hus. (Agr. 808, 812, 813) ----------6
Animal Hus. Lab'y (Agr. 809, 811, 812) ----------6
Military Science (Ac. 604) ----1
German (a) (Ac. 306b) ------3
Thesis ----------

Third Term.

Animal Hus. (Agr. 808, 810, 812) ----------6
Animal Hus. Lab'y (Agr. 812) 2
Entomology (Agr. 704, 705) --5
Military Science (Ac. 605) ----1
German (a) (Ac. 306c) ------4
Thesis ----------

(a) French may be substituted.

Electives: The additional work is to be selected from the elective subjects listed on page 85 or the third year course in Veterinary Medicine.

GROUP "D," AGRICULTURAL CHEMISTRY.

First Term.

Chemical Lab'y (Agr. 110) ----6
Entomology (Agr. 702, 703) --5
Military Science (Ac. 603) ----1
German (a) (Ac. 306a) ------4

Second Term.

Chemical Lab'y (Agr. 110) ---6
Forestry (Agr. 608) ----------5
Military Science (Ac. 604) ----1
German (a) (Ac. 306b) -------3

Third Term.

Chemical Lab'y (Agr. 110) ----6
Entomology (Agr. 704, 705) --5
Military Science (Ac. 605) ----1
German (a) (Ac. 306c) ------4

(a) French may be substituted.

Electives: The additional work is to be selected from the elective subjects listed on page 85.

GROUP "E," BOTANY.

First Term.

	H.	Wk.
German (a) (Ac. 306a)		4
Botany (Agr. 305)		6
Soils and Soils Lab'y (Agr. 211)	5	
Entomology (Agr. 702, 703)		5
Military Science (Ac. 603)		1

Second Term.

German (a) (Ac. 306b) ------3
Botany (Agr. 305 or 306) ----6
Soils and Soils Lab'y (Agr. 211) 5
Forestry and Forestry Lab'y (Agr. 609) ----------5
Military Science (Ac. 604) ----1

Third Term.

German (a) (Ac. 306c) ------4
Botany (Agr. 307) ----------6
Soils and Soils Lab'y (Agr. 211) 5
Entomology (Agr. 704, 705) --5
Military Science (Ac. 605) ----1

(a) French may be substituted.

Electives: The equivalent of at least six hours from the subjects listed on page 85, subject to the direction of the professor.

TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR.

First Term.

Corn (Agr. 204) ----------4
Dairying (Agr. 815) ---------6
Veterinary Science (Vet. 102) 5
Horticulture (Agr. 601) ------4
Chemistry (Agr. 101) --------4
English (special course) -----3
Physiology (Vet. 101) --------2
Feeding (Agr. 816) ----------2
Shop Work ----------6
Military Drill (a) (Ac. 600) --3

Second Term.

Veterinary Science (Vet. 102) 5
Chemistry (Agr. 101) --------4
English (special course) ------3
Physiology (Vet. 101) --------2
Livestock Management (Agr. 817) ----------3

	H. Wk.
Veg. Gardening (Agr. 603)	4
Feeding (Agr. 816)	2
Judging Livestock (Agr. 818)	4
Shop Work	6
Military Drill (a) (Ac. 600)	3

Third Term.

Veterinary Science (Vet. 102)	5
Chemistry (Agr. 101)	4
English (special course)	3
Physiology (Vet. 101)	2
Livestock Management (Agr. 817)	3
Judging Livestock (Agr. 819)	2
Livestock Feeding (Agr. 816)	2
Agriculture (Agr. 203)	4
Veg. Gardening (Agr. 603)	4
Shop Work	6
Military Drill (Ac. 600)	3

SECOND YEAR.

First Term.

Poultry (Agr. 822)	2
Zoology (Agr. 701)	5
Insects (Agr. 702, 703)	5
Soils and Fertilizers (Agr. 213)	2
Horticulture (Agr. 605)	5
Livestock Judging (Agr. 820)	4
Canning (Agr. 606)	3
Agriculture (Agr. 206)	4

Second Term.

Agriculture (Agr. 212)	4
Zoology (Agr. 701)	5
Swine Judging (Agr. 822)	4
Soils and Fertilizers (Agr. 213)	2
Meats (Agr. 823)	4
Terracing and Drainage (Agr. 214)	2
Horticulture (Agr. 605)	3
Forestry (Agr. 608)	5

Third Term.

Agriculture (Agr. 208)	8
Insects (Agr. 704, 705)	5
Horticulture (Agr. 605)	5
Principles of Breeding (Agr. 824)	2
Sheep Judging (Agr. 825)	2

PHARMACY.

FRESHMAN CLASS.

First Term.

English (102a)	3
History (Ac. 201)	2
Latin (Ac. 209)	3
Mathematics (Ac. 401)	5
Chemistry (Agr. 101)	4
Agriculture (Agr. 201, 801)	2
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 102b)	3
History (Ac. 201)	2
Latin (Ac. 209)	4
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term.

English (102b)	3
History (Ac. 201)	2
Latin (Ac. 205)	3
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

SOPHOMORE CLASS.

First Term.

Physics (Ac. 504)	3
History (Ac. 202)	2
†Mathematics (Ac. 403)	5
Botany (Agr. 302)	6
English (Ac. 103a)	3
Physiology (Vet. 101)	2
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term.

Physics (Ac. 504)	3
History (Ac. 202)	2
English (Ac. 103c)	3
†Mathematics (Ac. 403)	5
Botany (Agr. 302)	6
Physiology (Vet. 101)	2
Chemical Lab'y (Ac. 110a)	6
Military Drill (Ac. 600)	3

Third Term.

Physics (Ac. 504)	3
English (Ac. 103c)	3
†Mathematics (Ac. 404)	5
Botany (Agr. 307)	6
Physiology (Vet. 101)	2

	H. Wk.
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

†With approval of faculty other work may be substituted.

JUNIOR CLASS.

First Term.

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Pharmacy (Agr. 401a)	3
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110b)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Second Term.

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
†Pharmacy (Agr. 401a)	3
Pharmaceutical Laboratory (Agr. 401b)	8
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110b)	6
Military Tactics (Ac. 601)	1
Military Drill (Ac. 600)	3

Third Term.

English (a) (Ac. 107)	3
Physics (Ac. 504)	3
Pharmaceutical Laboratory (Agr. 401b)	8
Phar Chem. (Agr. 406)	3
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110b)	6
Military Tactics (Ac. 602)	1
Military Drill (Ac. 600)	3

(a) French or German may be substituted.

†Substitute Phar. Chem. (Agr. 406) latter half term.

SENIOR CLASS.

First Term.

Bacteriology and Bact. Lab'y (Vet. 108)	6
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	3
Adv. Pharmacog. (Agr. 404)	3
Military Science (Ac. 603)	1
Chemical Lab'y (Agr. 110c)	6
Pharmaceutical Laboratory (Agr. 403b)	12

Second Term.

Bacteriology and Bact. Lab'y (Vet. 108)	6
United States Phar. (Agr. 407)	3
†Pharmacology (Vet. 120)	3
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	3
Prescriptions (Agr. 405)	3
Military Science (Ac. 604)	1
Chemical Lab'y (Agr. 110c)	6
Pharmaceutical Testing and Drug Assay (Agr. 403c)	9

Third Term.

United States Phar. (Agr. 407)	3
Pharmacology (Vet. 120)	3
Organic Chem. (Agr. 103a)	2
Pharmacy (Agr. 403a)	3
Prescriptions (Agr. 405)	3
Military Science (Ac. 605)	1
Toxicology (Agr. 110e)	6
Urinalysis (Vet. 117)	3
Prescription Laboratory (Agr. 403d)	6
F od and Drug Analysis (Agr. 403e)	6

†Substitute for Bacteriology in latter half term.

TWO-YEAR COURSE IN PHARMACY.

FIRST YEAR.

First Term.

English (a) (special course)	3
Chemistry (Agr. 101)	4
Physiology (Vet. 101)	2
Pharmacy (Agr. 401a)	3
Botany (Agr. 302)	6
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110a)	6
Military Drill (Ac. 600)	3

Second Term.

English (a) (special course)	3
Chemistry (Agr. 101)	4
Physiology (Vet. 101)	2
†Pharmacy (Agr. 401a)	3
Pharmacognosy (Agr. 402)	4
Botany (Agr. 302)	6
Chemical Lab'y (Agr. 110a)	6
Pharmaceutical Laboratory (Agr. 401b)	8
Military Drill (Ac. 600)	3

Third Term.

English (special course)	3
Botany (Agr. 307)	6
Chemistry (Agr. 101)	4

	H. Wk.
Phar. Chem. (Agr. 406)	3
Physiology (Vet. 101)	2
Pharmacognosy (Agr. 402)	4
Chemical Lab'y (Agr. 110a)	6
Pharmaceutical Laboratory (Agr. 401b)	8
Military Drill (Ac. 600)	3

(a) Latin may be substituted.
†Substitute Phar. Chem. (Agr. 406) latter half term.

SECOND YEAR.

First Term.

Pharmacy (Agr. 403a)	3
Adv. Pharmacog. (Agr. 404)	3
Pharmaceutical Laboratory (Agr. 403b)	12
Organic Chem. (Agr. 103a)	2
Chemical Lab'y (Agr. 110c)	6
Bacteriology (Vet. 108)	6
Military Drill (Ac. 600)	3

Second Term.

Pharmacy (Agr. 403a)	3
Prescriptions (Agr. 405)	3
Pharmaceutical Testing and Drug Assay (Agr. 403c)	9
Organic Chem. (Agr. 103a)	2
Chemical Lab'y (Agr. 110c)	6
Bacteriology (Vet. 108)	6
United States Phar. (Agr. 407)	3
†Pharmacology (Vet. 120)	3
Military Drill (Ac. 600)	3

Third Term.

Pharmacy (Agr. 403a)	3
Prescriptions (Agr. 405)	3
United States Phar. (Agr. 407)	3
Pharmacology (Vet. 120)	3
Prescription Laboratory (Agr. 403d)	6
Food and Drug Analysis (403e)	6
Organic Chem. (Agr. 103a)	2
Toxicology (Agr. 110e)	7
Military Drill (Ac. 600)	3

†Substitute for Bacteriology in latter half second term.

THREE-YEAR COURSE IN PHARMACY.

In the first and second years the same studies are prescribed as in the Two-Year Course.

THIRD YEAR.

Entire Session.

Pharmaceutical Chemistry and Lab'y (Agr. 408)	15
Chemistry and Chem. Lab'y (Agr. 408j)	15
Bacteriological Laboratory (Vet. 108)	10
Military Drill (Ac. 600)	1

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

VETERINARY MEDICINE.

FIRST YEAR.

First Term.

	H. Wk.
General Chem. (Agr. 101)	4
Physiology (Vet. 101)	2
English (Ac. 102a)	3
Anatomy and Anat. Lab'y (Vet. 119)	12
Histology (Vet. 104)	5
Livestock Feeding (Agr. 816)	2
Chemical Lab'y (Agr. 110a)	6
Vet. Science (Vet. 102)	2
Clinics (Vet. 122)	3
Military Drill (Ac. 600)	3

Second Term.

General Chem. (Agr. 101)	4
Physiology (Vet. 101)	2
English (Ac. 102b)	3
Anatomy and Anat. Lab'y (Vet. 119)	15
Histology (Vet. 104)	5
Stock Feeding (Agr. 816)	2
Live Stock Management (Agr. 817)	2
Chemical Lab'y (Agr. 110b)	6
Vet. Science (Vet. 102)	2
Clinics (Vet. 122)	3
Military Drill (Ac. 600)	3

Third Term.

General Chem. (Agr. 101)	4
Physiology (Vet. 101)	2
English (Ac. 102b)	3
Live Stock Management (Agr. 817)	2

	H. Wk.
Anatomy and Anat. Lab'y (Vet. 119)	14
Embryology (Vet. 105)	5
Chemical Lab'y (Agr. 110b)	6
Vet. Science (Vet. 102)	2
Clinics (Vet. 122)	3
Military Drill (Ac. 600)	3

SECOND YEAR.

First Term.

Pharmacy (Agr. 403)	2
Pharmacy Lab'y (Agr. 403a)	8
Vet. Physiology (Vet. 106)	3
Bacteriology and Bact. Lab'y (Vet. 108)	6
Obstetrics (Vet. 110)	2
Vet. Medicine (Vet. 123)	3
Anatomy and Clinical Lab'y (Vet. 119, 122)	12
Vet. Science (Vet. 102)	2
Clinics (Vet. 122)	5
Military Drill (Ac. 600)	3

Second Term.

Pharmacy (Agr. 403)	5
Pharmacy Lab'y (Agr. 403a)	5
Vet. Physiology (Vet. 106)	2
Bacteriology, Pathology and Lab'y (Vet. 108, 109)	6
Obstetrics and Surgery Vet. 110, 111)	3
Vet. Medicine (Vet. 123)	3

Third Term.

Anatomy and Clinical Lab'y (Vet. 119, 122)	12
Military Drill (Ac. 600)	3
Botany (Agr. 307)	6
Vet. Physiology (Vet. 106)	2
Therapeutics (Vet. 120)	2

	H. Wk.
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Pathology and Path. Lab'y (Vet. 109)	6
Anatomy and Clinic Lab'y (Vet. 119, 122)	12
Military Drill (Ac. 600)	3

THIRD YEAR.

First Term.

Stock Breeding (Agr. 807)	2
Therapeutics (Vet. 120)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Infectious Diseases (Vet. 113)	2
Meat Inspection (Vet. 115)	2
Anatomy and Clinic Lab'y (Vet. 119, 122)	12
Thesis	4

Second Term.

Dairying (Agr. 814)	3
Surgical Exercises (Vet. 112)	4
Therapeutics (Vet. 120)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Infectious Diseases (Vet. 113)	3
Meat Inspection (Vet. 115)	2
Animal Parasites (Vet. 114)	2
Clinic Laboratory (Vet. 122)	12
Thesis	4

Third Term.

Toxicology (Agr. 110e)	7
Urinalysis (Vet. 117)	3
Surgery (Vet. 121)	2
Vet. Medicine (Vet. 123)	3
Milk Inspection (Vet. 116)	3
Animal Parasites (Vet. 114)	2
Clinic Laboratory (Vet. 122)	12
Thesis	4

2. Horticulture (1,2) 2. Mathematics 2. Pharmacognosy	1. Physics 1. Phys. Chemistry 2. Spanish 2. Agriculture (1,3)	(Phar.) (3) 2. Spanish 2. Chemistry (Ind.) 2. Chem. (Org.) (2)	2. Agriculture (1,3) 2. An. Ind. (2) 2. Chemistry (Org.) 2. Mathematics	2. Horticulture (3) 2. Mathematics 2. Pharmacognosy 3. Botany	Lab. 1,2,3. Clinics 3. Mechanic Arts 3. Phys. Lab.

THE NEW YORK PUBLIC LIBRARY

DESCRIPTION OF COURSES

ACADEMIC DEPARTMENTS

PSYCHOLOGY AND ECONOMICS.

PROFESSOR THACH.
PROFESSOR RUTLAND.
PROFESSOR CERTAIN.

1. Courses in psychology will be given in the department of education.

2. Economics. The object of this course is to give the student a general view of economics. It includes a study of wealth, value, price, competition, monopolization, production, and distribution; the evolution of industry, and the leading economic questions of today. Collateral reading, oral reports, and occasional written papers are required. *Two hours, second and third terms.*

ENGLISH

PROFESSOR RUTLAND.
PROFESSOR CERTAIN.
INSTRUCTOR WHITE.
INSTRUCTOR LEACH.
ASSISTANT FINCKEN.
ASSISTANT WORLEY.

The mastery of one's native language is a pre-requisite to high attainment in any profession. In a technological institute, where only brief courses in foreign languages can be pursued by most of the students, this mastery of the native speech becomes, if possible, even more essential to future success than in the classical colleges. This consideration alone would justify courses in English in technological institutions, but when we add to this the great cultural value of the study of language and literature, the wisdom of compulsory courses becomes obvious. The courses in English comprise the study of the theory of composition together with much practice in its application, both in writing and in speaking, a survey of the history of American and English literature, and an intensive study of the greatest periods and writers in English literature.

Requirements in English for admission are set forth on page 57. No student will be classed as regular in any course until he has met these requirements.

The requirements as to thesis and as to proficiency in Eng-

lish for certificates and diplomas are set forth on pages 64 and 182.

The following courses are offered:

FRESHMAN CLASS.

102. (a) Composition for freshmen. The principles of exposition, narration and description are studied, but special emphasis is given to the different types of exposition. Weekly themes and frequent exercises are required. When practicable, the instructors hold fortnightly conferences with students in order to correct, assist, and stimulate them. Text-book to be announced. *Three hours, first term; two hours second and third terms.*

(b) American literature for freshmen. A survey of the history of American literature together with the study of selected masterpieces. The recitations will be devoted chiefly to the discussion of the literature assigned for study, but the students will be required to master a concise history of the subject and to keep notes on both the history and the selections. Text-books to be announced. *Three hours, second and third terms.*

(c) Types of literature. This course is an appreciative study of some of the chief literary types—the essay, the drama, lyric and narrative verse, and the novel. Illustrative readings will be selected for the most part from American literature, but not entirely. *Two hours, first term.*

(d) Public speaking. This course is a study of the principles of public speaking. Attention is given to voice building, bodily expression, and oral interpretation of selected speeches. Those taking the course during first term will substitute it for (c), those taking it in the second or third terms will substitute it for (a). Text-book: Winter's *Principles of Public Speaking. Two hours, half term.*

SOPHOMORE CLASS.

103. (a) Argumentation for sophomores. This course consists of the study of the essentials of argumentation and requires extensive practice in gathering material, note-making, brief making, analysis and criticism of evidence, and practical debating. Weekly themes in argumentative form and one lengthy argument at the end of the course are required. Text-book: Pattee's *Practical Argumentation. Three hours, first term.*

(b) Debating for sophomores. All sophomores are required to meet at least once fortnightly at some other hour than the

regular recitation period for drill in parliamentary law and for practice in actual debating.

(c) English literature for sophomores. This course covers the whole range of English literature from Anglo-Saxon times to our own and consists of the interpretive and critical study of selected poetry and prose. The aim is to give the student not only a definite conception of the periods of literature and of the forces in life that found expression in literature, but also an appreciative understanding of the greater writers and productions. The students are required to keep full notes on the lectures as well as on the class study of selections. Text-books to be announced. *Three hours, second and third terms.*

(d) Public speaking. This course may be chosen by sophomores instead of the actual debating required in (b). It is a study of the ends of speech-making and the means of securing effectiveness. Emphasis is placed upon the principles of composition and comprises practical exercises in collecting and organizing material in addition to the study of style and structure of selected speeches and readings. Text-book: Phillips' *Effective Speaking.*

JUNIOR CLASS.

107. In the junior and senior years students pursuing the general course may form a separate section from the rest of the class. This section is required to do a greater amount of reading and written work than the technical students. Juniors may elect one of the following courses, but the department reserves the right to omit a course in case only a very small number elect it.

(a) Nineteenth century literature. The time will be about equally divided between Wordsworth and his contemporaries and the writers of the Victorian period. The course will involve wide reading, discussions of the technic of the writers, their art, growth of mind, general interpretation of life, and their relation to their own time and discussions of the various movements in science, politics, philosophy, and art in their relation to the literature of the period. The work is carried on partly by lectures and partly by class study of representative masterpieces. Students will be required to take notes on both lectures and class discussions, and to write weekly reports or themes. Text-books will be announced. *Three hours, entire session.*

(b) The essay and the novel. The larger part of the first term will be given to the study of the origin and development of the English Essay. Selected essays representing the seven-

teenth and eighteenth centuries will be read and much time will be devoted to the essay of the nineteenth century. The rest of the year will be devoted to the history of the novel. Representative novels from the eighteenth century to the present time are studied; and special attention is given to technic, plot and character analysis, relation to other forms of literature, the writer's conception of his art, and style. Text-book to be announced. *Three hours, entire session.*

(c) Contemporary literature. This course includes a study of recent tendencies in the drama, novel, short story and essay. Magazines such as the Atlantic Monthly, the Nation or the Dial are used as points of departure but most of the work will consist of extensive assigned readings out of class, together with class-room reports and discussions. Open also to seniors. *Three hours, entire session.*

SENIOR CLASS.

108. The following courses are offered for seniors:

(a) Shakespeare. The development of the English Drama before Shakespeare will be reviewed briefly through assigned reading and lectures and the life of Shakespeare will be included in the matter for final examination, but the class room instruction will be devoted chiefly to a careful study of the plays. During the first few weeks several plays of the different types and representative of the different periods of authorship are given brief treatment. Most of the time, however, is given to the close study of two plays, one comedy and one tragedy. Text-books to be announced. *Two hours, first term.*

(b) Advanced composition. This course is open to any student who has completed freshman and sophomore English and is planned to be of practical benefit to engineers and agriculturists. While general effectiveness in composition is the central aim, the forms of journalistic writing will be studied with the view of giving technical students practice in the preparation of compositions for publication. *Three hours, entire session.*

110. Methods of teaching English: If a sufficient number of students apply to the head of the department, a course in methods of teaching English will be offered, the text-book and hours to be determined later.

GRADUATE STUDENTS.

The following courses have been given to graduate students:

(a) Shakespeare: Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV, Richard III, King John.

(b) Dryden's Poetical Works: Arnold's Dramatic Poesy,

Yonge's Essay on Satire, Saintsbury's Dryden, Pope's Poetical Works, Pattison's Satire, Stephen's Pope, Gosse's From Shakespeare to Pope, and Eighteenth Century Literature.

(c) English literature of the eighteenth century: Addison, Pope, Gray, Goldsmith, Burns, Cowper, and Burke.

(d) American literature: Longfellow, Lowell, Poe.

(e) The English essay: Bacon, Addison, Steele, Swift, Johnson, Goldsmith, Macaulay, DeQuincey, Lamb, Carlyle.

(f) Milton's Poetical Works: Life, Pattison, Brooke.

(g) Elizabethan, Jacobean, and Caroline literature; Greene, Jonson, Marlowe, Webster, Beaumont, and Fletcher, Brown, Herrick, Bunyan and others.

(h) English literature, 1832-1894.

(i) Chaucer.

(j) English prose fiction.

For the year 1916-17, one of the following courses may be elected by the graduate class:

Anglo-Saxon: A study of the grammar and phonology of Anglo-Saxon, together with the reading of select prose and verse. The class will probably read a portion of Beowulf.

Chaucer: A study of the life and times of Chaucer together with the readings and critical study of a large portion of his collected writings.

Prose fiction: A study of the development of English fiction with special emphasis upon the modern novel.

Shakespeare: A critical study of the dramatist's art.

HISTORY AND LATIN.

PROFESSOR PETRIE.
INSTRUCTOR REYNOLDS.
INSTRUCTOR WHITE.
ASSISTANT WORLEY.

HISTORY.

In this department the aim is not so much to memorize ts as to understand them. Strong emphasis is laid on the hat history is not a succession of isolated facts, but a essive whole, each event being at once the cause and ffect of other events. The students are taught to investihe growth of ideas and institutions, the rise and progress eat historical movements, and the reciprocal influences n and circumstances. Frequent use is made of diagrams, graphs, charts and maps, with which the department is equipped. Instruction is given by text-books, lectures

teenth and eighteenth centuries will be read and much time will be devoted to the essay of the nineteenth century. The rest of the year will be devoted to the history of the novel. Representative novels from the eighteenth century to the present time are studied; and special attention is given to technic, plot and character analysis, relation to other forms of literature, the writer's conception of his art, and style. Text-book to be announced. *Three hours, entire session.*

(c) Contemporary literature. This course includes a study of recent tendencies in the drama, novel, short story and essay. Magazines such as the Atlantic Monthly, the Nation or the Dial are used as points of departure but most of the work will consist of extensive assigned readings out of class, together with class-room reports and discussions. Open also to seniors. *Three hours, entire session.*

SENIOR CLASS.

108. The following courses are offered for seniors:

(a) Shakespeare. The development of the English Drama before Shakespeare will be reviewed briefly through assigned reading and lectures and the life of Shakespeare will be included in the matter for final examination, but the class room instruction will be devoted chiefly to a careful study of the plays. During the first few weeks several plays of the different types and representative of the different periods of authorship are given brief treatment. Most of the time, however, is given to the close study of two plays, one comedy and one tragedy. Text-books to be announced. *Two hours, first term.*

(b) Advanced composition. This course is open to any student who has completed freshman and sophomore English and is planned to be of practical benefit to engineers and agriculturists. While general effectiveness in composition is the central aim, the forms of journalistic writing will be studied with the view of giving technical students practice in the preparation of compositions for publication. *Three hours, entire session.*

110. Methods of teaching English: If a sufficient number of students apply to the head of the department, a course in methods of teaching English will be offered, the text-book and hours to be determined later.

GRADUATE STUDENTS.

The following courses have been given to graduate students:

(a) Shakespeare: Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV, Richard III, King John.

(b) Dryden's Poetical Works: Arnold's Dramatic Poesy,

Yonge's Essay on Satire, Saintsbury's Dryden, Pope's Poetical Works, Pattison's Satire, Stephen's Pope, Gosse's From Shakespeare to Pope, and Eighteenth Century Literature.

(c) English literature of the eighteenth century: Addison, Pope, Gray, Goldsmith, Burns, Cowper, and Burke.

(d) American literature: Longfellow, Lowell, Poe.

(e) The English essay: Bacon, Addison, Steele, Swift, Johnson, Goldsmith, Macaulay, DeQuincey, Lamb, Carlyle.

(f) Milton's Poetical Works: Life, Pattison, Brooke.

(g) Elizabethan, Jacobean, and Caroline literature; Greene, Jonson, Marlowe, Webster, Beaumont, and Fletcher, Brown, Herrick, Bunyan and others.

(h) English literature, 1832-1894.

(i) Chaucer.

(j) English prose fiction.

For the year 1916-17, one of the following courses may be elected by the graduate class:

Anglo-Saxon: A study of the grammar and phonology of Anglo-Saxon, together with the reading of select prose and verse. The class will probably read a portion of Beowulf.

Chaucer: A study of the life and times of Chaucer together with the readings and critical study of a large portion of his collected writings.

Prose fiction: A study of the development of English fiction with special emphasis upon the modern novel.

Shakespeare: A critical study of the dramatist's art.

HISTORY AND LATIN.

PROFESSOR PETRIE.
INSTRUCTOR REYNOLDS.
INSTRUCTOR WHITE.
ASSISTANT WORLEY.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements, and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Instruction is given by text-books, lectures

and class discussion, but a constant effort is made to stimulate to wider reading and research in the library. The following courses are offered:

FRESHMAN CLASS.

201. Industrial and constitutional history of the United States: The course consists of lectures and text-book work, and is somewhat advanced. All students who take it must have previously completed some high school text-book on the history of the United States. Text-books: Hart's Formation of the Union; Wilson's Division and Reunion. *Two hours, entire session.*

SOPHOMORE CLASS.

202. History of Modern Europe: Required of all members of the sophomore class. Some previous knowledge of the subject is desirable, but not necessary. Text-book, Hazen's Europe Since 1815. *Two hours, first and second terms.*

204. A brief course in recent history: Not required of any students, but those who expect to take the general course may take this work. Text-book: Hazen's Europe Since 1815, and current periodicals. *Three times a week, third term.*

SENIOR CLASS.

205. English constitutional history: A course for one year for members of the senior class. Text-book will be announced later.

JUNIOR AND SENIOR CLASSES.

206. Historical laboratory: An opportunity for advanced work in United States history, for those students of the general course who elect it as laboratory work, and for any others who are properly qualified.

The chief object kept in view is training in historical research and in the formation of independent but careful opinions based on the original sources of information, as well as on the standard authorities. Emphasis is laid on the importance of securing proper material for investigation, and every incentive is given to the collection and use of new documents, papers, and letters illustrative of Southern and especially of Alabama history. The method of work is as follows: Informal lectures are given on important and suggestive points, as: The cause of the Revolution; the Constitutional Convention; the War of 1812; the Missouri Compromise; the Monroe Doctrine; Texas and Mexico; the Compromise of 1850; the Kansas Struggle; the Dred Scott Decision; Secession. After each lecture a general discussion follows, and topics connected with it are

assigned to the students with an outline of the points to be investigated. The final results are collected by each student according to his own judgment in his note-book, which is then passed in to the professor for correction and suggestion. Text-book: McDonald's Select Statutes. *Six hours, entire session.*

International Law: A brief course is offered for those students who expect to enter the army or navy. *One hour a week.*

GRADUATE COURSE.

207. Graduate students are expected to take part in the junior and senior discussions, and will also meet with the professor for conference about their work. Each year some special field is taken for investigation and discussion. Those who take history as their major study are expected to devote a large part of their time to research upon some topic upon which they can consult the original sources of information.

208. Teachers' course: Conferences every other week with those students who expect to teach history.

LATIN.

The objects kept in view in this department are: An accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives, an appreciation of Latin literature and an intelligent conception of Roman history and civilization, both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation. English passages based on a familiar author or illustrative of special constructions are put in Latin, both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class, a course of reading in English is prescribed descriptive of his life, work and times. The historical setting and the literary value of his writings are carefully discussed and frequent comparisons are made with modern authors.

In the freshman and sophomore classes, the study of the language is the chief point. In the higher classes a broader view is taken. The junior class makes a special study of Roman history and Roman historians. The senior class studies Roman poetry and Roman life.

The following courses are offered with the text-books named:

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209. Freshman class: Exercises, Cicero, Sallust, or equivalent. Allen and Greenough's Latin Grammar. *Three hours, first term; four hours, second and third terms.*

210. Sophomore class: Livy, Allen and Greenough's Grammar, Bennett's Latin Composition. *Five hours, entire year.*

211. Junior class: Livy, Tacitus, grammar, Roman history, exercises. Allen and Greenough's Grammar, Botsford's History of Rome. *Three hours, entire year.*

212. Senior class: Horace, Plautus, Latin literature, grammar. Allen and Greenough's Grammar. *Three hours, entire year.*

213. Pedagogical course: During the spring term a pedagogical course is given in Latin. It is designed chiefly, but not exclusively, for members of the senior class. It includes a discussion of the methods of teaching forms and syntax, as well as concrete illustrations of the way to overcome the difficulties in Caesar and Virgil.

MODERN LANGUAGES.

PROFESSOR WIATT.

ASSISTANT ELIZONDO.

The chief aim in this department is to give the student a thorough and accurate knowledge of the elementary principles of the subjects taught, and to enable him to read with facility the ordinary French and German at sight. To train the ear, acquire a correct pronunciation and some facility in speaking, all recitations are supplemented, as far as practicable, by oral exercises in the languages themselves.

Opportunity for the study of Spanish is given students who elect that language.

FRENCH.

JUNIOR CLASS.

301. (a) A course covering the essentials of grammar and pronunciation to enable the student to begin the reading of simple French prose. This course continues through the first term, three hours a week being given to the study of grammar and one hour to pronunciation and conversation. *Four hours, first term.*

(b) The second term includes a course of reading in simple

prose (2 hours a week), and the continuation of grammar with translations of English into French (1 hour a week). *Three hours, second term.*

(c) During the third term the reading of more advanced selections in prose and poetry is begun (2 hours a week), grammar and composition (1 hour a week); and pronunciation and conversation (1 hour a week). *Four hours, third term.*

SENIOR CLASS.

302. (a) A course in reading: Corneille and modern French plays (2 hours a week); laws of grammar and composition (1 hour a week); pronunciation and conversation (1 hour a week). *Four hours, first term.*

(b) The second term is given to the study of Racine, and the reading of modern French literature (2 hours a week) and to continued study of the structure and syntactical features of the languages in connection with translations into French. *Three hours, second term.*

(c) The third term includes a study of Moliere (1 hour a week); the history of French literature (1 hour a week); more advanced work in grammar and composition (1 hour a week); and pronunciation and conversation (1 hour a week). *Four hours, third term.*

303. Teachers' course: During the spring term the work of the senior class will be so modified or supplemented, as to include a short pedagogical course for students who expect to teach French. This will consist chiefly of elementary work in grammar and syntax and a study of the best methods of giving instruction in this subject. *Third term, senior year.*

GRADUATE STUDENTS.

304. Graduate course: Offered for students who wish to pursue the study of French beyond the scope to which a two-year course necessarily limits them. In addition to the authors studied in the lecture room, a wide and extensive reading of literature is prescribed.

TEXT-BOOKS.

First year: Frazer and Squair's Shorter French Course; Francois and Giroud's Simple French.

Second Year: Corneille, Racine, Moliere, selected modern French plays, Duval's Histoire de la Literature Francaise; Frazer and Squair's French Grammar, French Composition.

GERMAN.

The following regular courses are given:

JUNIOR CLASS.

305. (a) A course embracing the fundamental principles of grammar and the essentials of pronunciation leading to the intelligent reading and translation of simple German texts (3 hours a week), and exercises in pronunciation and conversation (1 hour a week). *Four hours, first term.*

(b) In the second term the reading of simple prose is begun (2 hours a week), and grammar and composition continued (1 hour a week). *Three hours, second term.*

(c) Reading of more difficult selections of prose and poetry is begun and continued throughout the third term (2 hours a week). Grammar and composition continued (1 hour a week), and conversational exercises (1 hour a week). *Four hours, third term.*

SENIOR CLASS.

306. (a) A course of reading in modern German (2 hours a week); structure and syntax of the language with translations into German (1 hour a week); conversation (1 hour a week). *Four hours, first term*

(b) Schiller (2 hours a week); History of German literature and composition (1 hour a week). *Three hours, second term.*

(c) German lyrics and ballads (2 hours a week). German literature (1 hour a week), composition and conversation (1 hour a week). *Four hours, third term.*

307. A course for students from the scientific schools, including readings of various scientific subjects, selected to meet the requirements of the class (2 hours a week), grammar and composition (1 hour a week) and conversation (1 hour a week). *Four hours, entire session.*

308. Teachers' Course: During the third term in the senior class of German, the course will be so modified, or supplemented, as to include a short pedagogical course for those students who expect to become teachers of this language. This will consist chiefly of elementary work in grammar and syntax, and a study of the best methods of giving instruction in the subject.

GRADUATE STUDENTS.

309. Advanced course: For those students who wish to pursue the study of German beyond the scope to which a two-year course necessarily limits them. Here, in addition to

the authors studied in the lecture room, a wide and extensive reading of authors and literature is prescribed.

TEXT-BOOKS.

First Year: Wesselhoeft's German Grammar, Super's German Reader.

Second Year: Schiller, Lessing, selected modern German plays, German lyrics, Bernhardt's Deutsche Litteraturgeschichte, Joynes-Meissner's German Grammar, German Composition.

SPANISH.

310. A course in Spanish is also given, embracing the fundamentals of the language, consisting of a study of the grammar, readings of modern Spanish selections and exercises in conversation. *Three hours, entire session.*

Texts: Coester's Spanish Grammar; Harrison's Commercial Reader.

MATHEMATICS.

PROFESSOR CRENSHAW.

PROFESSOR MESSICK.

ASSOCIATE PROFESSOR SHI.

INSTRUCTOR PATRICK.

INSTRUCTOR STOKES.

INSTRUCTOR DONAHUE.

ASSISTANT DONEHOO.

ASSISTANT MELVIN.

The courses of instruction offered in this department are designed to give the student that mental discipline and training in logic which will enable him to think and reason logically; as well as a thorough knowledge of the principles and formulas of pure mathematics and their practical applications in the engineering and other scientific professions.

The courses offered in the different classes in this department are as follows:

FRESHMAN CLASS.

401. Plane Trigonometry. *Five hours, first term.*

402. Advanced Algebra. *Five hours, second and third terms.*

SOPHOMORE CLASS.

403. Analytic Geometry. *Five hours, first and second terms.*

404. Introductory Course in Calculus. *Five hours, third* term.

JUNIOR CLASS.

405. Calculus. *Five hours, entire year.*

GRADUATE STUDENTS.

407. Differential Equations. *Two hours, entire year.*

408. Methods of teaching mathematics. The department offers a course designed for teachers of elementary mathematics, or for those who expect to make this their profession. The elementary branches of mathematics will be reviewed and methods of teaching briefly discussed, keeping constantly in view the co-ordination of the lower branches with the higher. The course will include also a brief *resume* of the history of the elementary subjects, a critical examination of the extant text-books; and finally, an outline of a course of study in advanced mathematics to be pursued by the teacher.

409. Projective Geometry. This course which aims to present the elements of the subject, will be offered to seniors and graduate students in architecture and engineering and to those properly equipped who wish to pursue the subject of mathematics. *Hours to be arranged, third term.*

Text-books used in this department will be announced later.

PHYSICS.

PROFESSOR DUNSTAN.
ASSOCIATE PROFESSOR WOOTEN.
INSTRUCTOR SPANN.

The complete course in physics extends over two years and it is designed to give as far as possible an adequate and correct idea of the method of physical science, and to lay the foundation for subsequent advanced work if the student desires to pursue the work further or intends to engage in any of the great engineering professions of which physics forms so important a basis.

Two of the courses offered are given in the sophomore year, one being a lecture course and the other a course in laboratory work. The lectures are illustrated by lecture table experiments, and the students are required to work numerous problems and exercises.

SOPHOMORE CLASS.

504. A lecture course in general physics required of all students who are candidates for the degree of Bachelor of

Science. For entrance upon this course the student should have had one year's work in elementary physics and a working knowledge of plane trigonometry. The subjects treated are varied from year to year, but they consist in the main of mechanics of rigid bodies, heat, light, sound, electricity, etc. Written exercises will be required each week. *Three hours, entire session.*

502. This is a laboratory course which is required of all students in engineering. Non-engineering students may select it as an optional subject. The laboratory experiments are carefully selected and they comprise work in general mensuration with instruments of precision, heat, light, sound and electricity. The student is required to write a full report of each experiment as he completes it, and the form of compiling data and expressing methods and results is given great weight in determining average grades. The work in the laboratory will be arranged so as to co-ordinate as far as possible with the work treated in the lecture course. Entrance into the laboratory course requires that the student shall have had at least one year of elementary physics. *Two hours, entire session.*

JUNIOR CLASS.

Students in the junior class will take course 504 with the sophomores during the session of 1916-17.

SENIOR CLASS.

505. This lecture course is more advanced than the one given to the sophomores and it presupposes a knowledge of the calculus, both differential and integral. The subjects treated are varied from year to year. They are treated thoroughly and rigorously and the student is encouraged to learn to use the language of mathematics in expressing his ideas. Attention is paid to the history of the development of the various subjects treated. Written exercises are required each week. *Two hours, first and second terms.*

506. Astronomy. A brief course in descriptive astronomy. *Two hours, third term.*

GRADUATE STUDENTS.

508. Mechanics. A course in mechanics is offered in which the methods of vector analysis are applied to the derivations of various principles and in the solutions of various problems. The course presupposes a thorough working knowledge of analytical geometry and the calculus. *Two hours, entire session.*

MILITARY SCIENCE AND TACTICS.

COL. B. S. PATRICK, *Commandant.*

Military science and tactics are required by law to be taught in this institution. The law is faithfully carried out by imparting to each student, not physically incapacitated to bear arms, practical instruction in the school of the soldier, of the company, and of the battalion in close and extended order, in guard mounting, inspection, parades, reviews, etc.

Under section 1225, U. S. Revised Statutes, the college is provided with U. S. Magazine rifle, calibre 30 model 1898, and accoutrements.

The following uniform of standard cadet gray cloth has been prescribed for dress; coat and trousers as worn for fatigue at West Point, with dark blue cadet cap. A neat and serviceable uniform can be obtained for $15.50. This is less expensive than the usual clothing. All students are required to wear this uniform during the session.

The entire body of students is organized as a regiment of two battalions. The officers are selected for military efficiency, good conduct and scholarship. The commissioned officers will be selected from either the senior or the junior class, and promotion will depend on merit and not wholly on seniority.

A band composed of cadets furnishes appropriate music at all reviews and parades and on other special occasions.

A student who has once accepted an office cannot resign it except for reasons entirely satisfactory to the president and the commandant. The resignation of an office will usually not be considered without first placing all the circumstances to the case before his parent or guardian.

Candidates for appointment or promotion may be required to stand an examination. Moral fitness, including demerits, will be considered.

Each company is officered by one captain, two first lieutenants, one second lieutenant, and a proper number of non-commissioned officers. The officers and non-commissioned officers are distinguished by appropriate insignia of rank. These appointments are confirmed by the president on the nomination of the commandant.

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant-General of the U. S. Army and to the Adjutant-General of their respective States.

The theoretical course in military science and tactics is be-

gun in the junior and continued throughout the senior year.

The following are the courses prescribed:

JUNIOR CLASS.

600. Military drill: Required of all freshmen, sophomores, and juniors not physically incapacitated to bear arms. *Three hours, entire year.*

601. Infantry drill regulations. *One hour, first and second terms.*

602. Firing regulations for small arms. *One hour, third term.*

SENIOR CLASS.

603. Manual of military science (Moss). *One hour, half first term.*

604. Field service regulations: *One hour, half first term and second term.*

605. Manual of guard duty: *One hour, third term.*

EDUCATION.

PROFESSOR JUDD.
PROFESSOR BLASINGAME.

The Department of Education was established by order of the Board of Trustees, June, 1915. This action was taken:

1. Because a large number of the graduates of the Institute each year enter the field of education as teachers and principals.

2. Because of the increasing demand in the State of Alabama for professionally trained teachers.

3. Because of the new emphasis on rural life and education, creating a demand for teachers and principals acquainted with the rural sciences and industries in the district agricultural and the county high schools.

4. Because of the increasing number of positions in the city schools requiring teachers especially trained in the sciences.

5. Because of the increasing demand for men of academic and professional training for the position of county superintendent.

For several years the Institute has offered courses in special methods in some of its departments. It has worked in cooperation with the district agricultural and county high schools through furnishing a visitor and inspector, whose reports are regularly filed with the State Department of Education.

PURPOSE.

The Institute purposes, through its various Colleges and the Department of Education, to meet as liberally as possible the demands from the several divisions of the field of education as indicated above. It does so with a consciousness of obligation in two directions:

1. To the State—whose creature it is, from which it draws support, and to which it owes the most faithful, efficient, and complete service.

2. To its students—who elect to pursue here courses in academic and scientific subjects, necessary as a fundamental preparation for teaching.

The State Department of Education, by recent ruling, will grant to certain graduates of the leading colleges of Alabama first-grade and life certificates. The requirements for these certificates are that graduates must have pursued courses in education, the minimum number of hours in which shall be for:

1915-1916	6 hours
1916-1917	7 hours
1917-1918 and thereafter	9 hours

COURSES OF INSTRUCTION.

Education 1. Elementary Psychology and Educational Psychology: Text-books, lectures, and assigned readings. Elective for both academic and professional students of junior standing.

The aim of this course is twofold:

1. To introduce the student to the subject-matter and methods of general psychology.

2. To present the psychological principles which underlie the process of learning.

For present year this course is open only to students who have taken, or are taking, Education 2, 5, and 6, and with the consent of the professor in charge. *Three hours, the year.*

Education 2. Principles of Education: A consideration of the aims, principles, and processes of education. Lectures, readings, and discussions. Elective for both academic and professional students of junior and senior standing. Required of applicants for recommendation for the State Teacher's Certificate.

This course will present a scientific study of education from the psychological, biological, and sociological points of view. The considerations will be the nature of the educable being and

the character of his environment, adjustment to which and control over which constitute the chief aim of education. *Three hours, the year.* Sec. I. *M., Tu., Th.* 8-9; sec. II. *M., W, F.* 9-10.

Education 3. A study of Adolescence: Devoted to a consideration of the characteristics and needs of the high school age. Elective for both academic and professional students of junior and senior standing. Text-books and lectures.

The objects of the course are:

1. To discover as far as possible the natural tendencies and characteristics of the period of youth.

2. To determine how they can best be brought to a successful issue in maturity, through the proper adaptation of the organization and administration of the high school to the physical, mental, and social needs of boy and girl life.

Attention is called to Education 4, which constitutes the second half-year's work. *Three hours, first half-year.*

Education 4. Sociology: An elementary study of society and social problems. Elective for both academic and professional students of junior and senior standing. Text-books, lectures, and discussions.

The object of this course is to acquaint the student with the nature, laws, and objects of society, as conditioning the content and method of education.

Attention is called to Education 3, which constitutes the first half-year's work. *Three hours, second half-year.*

Education 5. Secondary Education: The American High School, its organization, management, and administration. Text-books, assigned reading, reports, and discussions. Elective for both juniors and seniors in Education. Required of applicants for recommendation for the State Teacher's Certificate.

A critical examination of typical high schools, emphasizing the function, course of study, social needs, equipment, training and qualification of teachers, and similar matters of administration. Especial emphasis will be placed upon the high school curriculum, including the best modern methods, equipment and material pertaining to the teaching of the different high school subjects. A study of the special problems confronting Alabama with respect to the establishment and development of public high schools. Throughout the entire course, the relation of the high school to the community will be stressed. *Three hours, first and second terms.*

Education 6. Principles and Practice of Teaching: A study of the principles of school management, discipline, and teach-

ing. Text-books, lectures, observations, reports, and discussions. Elective for juniors and seniors in Education. Required of applicants for recommendation for the State Teacher's Certificate.

Observations in local city and rural schools, planning of lessons, criticism of recitation work. Illustrative lessons in the several subjects of the course of study. The work of the course will consider the practical problems of the classroom in their relation to the life of the community. *Three hours, third term.*

Education 7. Educational Sociology, Foundations of the School as a Social Institution: Lectures, readings, and discussions. Elective for both academic and professional students of junior and senior standing.

The social and industrial character of present-day country life and the district, village, and town school as its chief institution will be the concerns of this course. The chief problems of the home, the farm, and the associational life of the community will be discussed. The country school evolved in the endeavor to offer solutions to these problems will be defined. *Three hours, first term.*

Education 8. Rural Educational Practice: A survey and an evaluation of the practice of typical town and country schools. Assigned readings, investigations, reports and discussions. Elective for seniors in Education, and for teachers of experience.

It will be the purpose of this course to acquaint the student with the best practice found in our town and country schools. A survey of the work of some of the better district, village, and town schools of the United States will be made. Special features will be noted and an attempt made to evaluate them in terms of the environs of and the demands upon one's own school. The teacher's relation to the larger phases of school development and the daily problems arising in and about the school will receive attention. Bulletins from the United States Bureau of Education and from the various state departments of education and other special publications will be read. *Three hours, second term.*

Education 9. School Supervision: The principles and the administration of school supervision. Text-books, lectures, observations, and conferences. Elective for seniors in Education and for teachers of experience.

The principal topics considered in this course will be:

1. Supervisory officers,—superintendent and special supervisors.

2. General plan of supervision,—training of teachers in service, schoolroom visits, aids to teachers.

3. Observation and criticism of the process of instruction,—standards of the recitation, application of these standards as modified by local conditions, preparation of the recitation by teachers and pupils, conference with teachers, demonstration teaching by supervisor. *Three hours, third term.*

Education 10. School Curricula: An examination and an evaluation of social materials, and the principles in the construction of courses of study. Assigned readings, investigations, and reports. Elective for advanced students in Education.

The content and organization of courses of study will constitute the considerations of this course. An effort will be made to formulate the chief sociological demands of country life and to make out courses of study suitable to typical social and industrial situations. Concrete contributions of normal schools and schools of education in the leading colleges and universities and of specialists in education will be studied. Reports on first-hand investigations, and specimen curricula will be required. *Two hours, the year.*

Education 11. Library Methods: Organization, administration, and equipment: Lectures and practical work in the library. Open to seniors in Education.

The aim of this course is to train intending teachers in the organization, care, and administration of a school library. Particular regard will be had for the selection of books suitable to school and community needs and for the adjustment of the reading hours to the occupations and customs of the neighborhood. *One hour, the year.*

Courses in Education for which hours have not been assigned, will be scheduled at the opening of the fall session. Persons interested in the Department of Education are requested to write for the special bulletin.

METHODS IN TEACHING SPECIAL SUBJECTS.

Courses in special methods in teaching the various subjects designed for teachers in the schools of Alabama and for intending teachers will be offered upon application to the head of the department. The instruction is given by teachers of extensive experience, who are familiar with school conditions in the State.

Courses are offered in the following subjects:

English, History, Latin, French, German, Mathematics, Physics, Manual Training, Physical Geography, Drawing and Descriptive Geometry, Chemistry, Agriculture, Physiology and Hygiene, and Horticulture. Descriptions of these courses will be found in their respective departments.

SUMMER SESSION.

The Summer Session for 1916 will open on June eighth and continue to July nineteenth.

COURSES OF STUDY.

For College Credit: Those subjects most in demand will be offered every summer. Others will be offered once in alternate summers, still others, once in four summers. The aim will be to give opportunity to any student attending four summer sessions to pursue any study offered during the college year.

For Entrance Credit: Courses in high school history, English, Latin, mathematics, and others for which there may be sufficient demand.

Teachers' Courses: Special courses for teachers in high school physics, history, English, geography, physiology, drawing, mathematics.

The Newer High School Subjects: Agriculture, horticulture, animal husbandry, household economics, and manual training. Two aims will dominate these courses: First to present the subject-matter with a view of giving the teachers a thorough mastery of it; second, to indicate to them what portions of these subjects they may undertake to teach in the high school and how to select or improvise the necessary equipment.

Professional Courses: Psychology, educational psychology, school management and methods, supervision, administration, and rural sociology.

Elementary Methods: A course in primary and grammar grade methods, library methods, public school music, plays

and games for children, writing and drawing, the common branches.

PURPOSE.

It will be the purpose through these courses to meet the needs of:

1. The various types and classes of teachers in the State of elementary, high school, and college level.
2. College students who wish by means of summer study to shorten their term in college or to make up back studies.
3. Prospective college students, who may be irregular in their studies and who wish to remove entrance conditions.

FACULTY.

The Summer Session faculty will comprise members of the regular college staff, specialists in education from other institutions, and practical supervisors and superintendents.

EXPENSES.

The cost of attendance upon the summer session is moderate. Board and lodging for the session may be secured for $20 to $30. The registration fee is $3.00. Tuition is free to all pursuing courses for teachers. A small fee is charged for laboratory courses, for college credit and entrance courses, and for certain courses in athletics.

FULL ANNOUNCEMENT.

The Summer School Bulletin announces courses and members of the faculty and gives all needed information. Persons interested may obtain a copy of the bulletin upon request.

COLLEGE OF ENGINEERING AND MINES

CIVIL ENGINEERING.

PROFESSOR MITCHAM.
ASSISTANT PROFESSOR STELZENMULLER.
ASSISTANT DONEHOO.

FRESHMAN CLASS.

102. Plane surveying and levelling: A longer course required of all engineering students. Instruction will be given in the use, care, and adjustment of instruments; standardizing tapes; determination of true meridian and magnetic declination; U. S. Public Land Surveys; methods of retracing old lines; farm surveys by various methods; plotting and calculating areas; dividing lands; surveying and mapping existing roads and streets; laying out townsites and establishing permanent monuments for same; differential levelling; profile levelling; construction of profiles and establishing grades; cross-section levelling; calculation of volumes of excavation and embankment; topographic surveying; mapping; terracing; staking out and giving grades for sewers, ditches, and drains; staking out buildings, etc. *Lectures and recitations, three hours, field practice two hours, second and third terms.*

SOPHOMORE CLASS.

103. Higher surveying: Required of civil engineering students. Instruction will cover hydrographic surveying; mining surveying; city surveying; geodetic surveying and projection of maps. *Lectures and recitations two hours, field practice two hours, third term.*

104. Railway surveying: Required of students pursuing courses in civil and mining engineering. Instruction will cover preliminary surveys; theory of simple, reversed, and compound curves; transition curves; railway grades; vertical curves; construction surveys; calculation of quantities involved in railway construction. *Three hours recitations and two hours practice, first term.*

106. Railway surveying: A course involving additional study of the railroad spirals; problems in location; fixing grades with reference to economy in construction and operation; approximate estimates of quantities from profiles; cross-sectioning and calculating of excavation and embankment; calculation of overhaul; borrow pits; planning, and staking

William LeRoy Broun Engineering Hall

out railway structures. *Two hours recitations and two hours field and office practice, second term.*

JUNIOR CLASS.

107. Roads and pavements: A course of lectures and recitations covering economic principles involved in road improvement; analysis of resistance to traction; location, grades, and drainage of new roads; relocation and improvement of existing roads; construction of earth, gravel, macadam, concrete, brick, and bituminous roads, with study of properties of the various materials used in road construction, the methods employed in testing them, and the best specifications for constructing roads with the several materials; street plans of cities and towns; width and grades of streets; curbs and gutters; construction of various kinds of street pavements; storm drainage systems for cities; and construction of sidewalks. *Five hours, first term.*

108. Road materials laboratory: The study and testing of various materials used in the construction of roads and pavements. The purpose of the course is to give the student an opportunity of becoming familiar with the physical properties, relative merits, and methods of testing the various materials. *Four hours, second term.*

109. Road and street improvement: A practical field and office course in making surveys, plans, and estimates for road and street improvements. *Six hours, third term.*

111. Graphic Statics: A course of lectures and drafting room exercises covering fundamental principles of equilibrium; composition and resolution of forces; the equilibrium polygon; graphical determination of stresses in trusses and framed structures; bending moment and shear in beams; center of gravity of given sections; moment of inertia. *Lectures two hours, drafting three hours, third term.*

112. Structural drafting: The purpose of this course is to acquaint the student with the details of structural steel work, to train him in the neat and accurate execution of drawings, and to teach him in a practical way to solve some of the simpler problems in structural mechanics. *Six hours, first and second terms.*

SENIOR CLASS.

113. Theory of structures: The purpose of this course is to teach the fundamental theories underlying the design of bridges, roofs, and other framed structures of metal and timber. The discussions cover determination of outer and

inner forces acting on the structure; concentrated live load systems; design of beams, plate girders, simple trusses, bridge trusses with secondary web systems, lateral and portal bracing, transverse bents, viaduct towers, cantilever bridges, three-hinged arches. *Five hours, first term.*

114. Structural design: This is a drafting room course in the practice of bridge and structural design, and is the complement of course 113. Complete designs are worked out for a number of structures. *Nine hours, first and third terms.*

115. Railroad engineering: The discussions cover the inception, promotion, and organization of railroad projects, organization and construction; the duties of the engineer; alignment and grades; rails and rail fastenings; cross ties; ballast and roadbed; culverts; bridges, and minor structures; turnouts; sidetracks and yards; terminals; elevation of outer rail; signalling; the locomotive and its work; the locomotive and grade problems; railroad expenditures; relation of operating expenses to number of trains; effect of rise and fall, distance, and curvature to train mile costs; railroad location, construction, and betterment surveys. *Three hours, first term.*

116. Theoretical hydraulics: The discussions cover fluid pressures; equilibrium of floating bodies; fundamental principles of hydro-mechanics; methods of measuring the flow of water; Pitot tube; Venturi meter; orifices; tubes; sluices; weirs; nozzles; fire hose; flow in open channels, sewers, conduits, etc; flow in pipes; dynamic action of flowing water; impulse wheels; turbines of various types; centrifugal pumps. *Five hours, second term.*

117. Practical hydraulics: This course is the complement of course 116, and its purpose is to bring the student into close touch with practical hydraulics. The work includes the determination of coefficients of orifices, tubes, and nozzles, determining loss of head in pipes and fire hose; measurement of water by weirs and meters; testing meters and pumps; gauging streams with current meter; visits of inspection to hydro-electric power plants under construction and in operation and reports on same. *Three hours, third term.*

118. Concrete and masonry construction: Discussions cover mathematical theories underlying the design of reinforced concrete beams, columns, slabs and arches; cements, limes and mortars; methods of mixing and placing plain and reinforced concrete; classification and properties of building stones; definition and construction of various classes of stone masonry; manufacture of brick; brick work; stone and brick arches;

retaining walls; piers and abutments; shallow foundations; coffer dams; crib foundations; pile foundations; pneumatic caissons; the freezing process; cylinder piers. *Three hours, second and third terms.*

119. Sanitary engineering: The discussions cover the history of sanitary science; sanitary measures necessary for the prevention of zymotic diseases; the engineer's part in the campaign for the prevention of disease; the sources of water supply, its collection, purification, and distribution; sewerage, and sewerage design; sewage disposal; construction of sewers; pumping of sewage; sewage treatment plant; sewage farms; collection and disposal of garbage and rubbish; street cleaning. *Five hours, third term.*

120. Thesis: Each candidate for a degree in civil engineering is required to prepare a thesis upon some engineering subject which he may select. It must be the record of original investigation of some engineering subject or an original design of some engineering structure or project. The applicant for a degree shall file a written announcement of his subject with the professor of civil engineering not later than October 1st of his senior year; and the thesis shall be completed and submitted for approval not later than May 1st. During the first term the candidate shall devote not less than four hours a week to reading and collecting data for his thesis; during the second term he shall devote not less than nine hours a week and during the third term until May 1st, not less than three hours a week to work on his thesis. He shall submit on Monday morning of each week a written statement of the time he has devoted to thesis work during the preceding week.

The student is also required to prepare and hand in one report or paper during first term and one during second term on subject of thesis or some allied subject approved by the professor.

SUMMER CAMP AND SCHOOL OF SURVEYING.

105. Practical work in plane and higher surveying supplementing the instruction given in courses 102 and 103: This work is given at the summer camp immediately after commencement, between freshman and sophomore years. The purpose of this course is to give the student uninterrupted practice in the solution of practical problems in surveying similar to those which he will meet early in his career as an engineer; and the course is in line with the policy of the institute to combine theory and practice in all its branches of technical instruction. Students in this course are required to make notes

of all the work done by the party to which he is assigned and to compute and plot all surveys made by his party. The parties will be made as small as the conditions to the work will permit so as to give each student the greatest possible amount of practice with the instruments. This course is required of all students who are candidates for graduation in civil, or mining engineering, and requires *forty-eight hours per week for four weeks.*

110. Practical work in railway, highway, and hydrographic surveying: This course is also given in the summer camp, and is required of all students who are candidates for graduation in civil or mining engineering, and will be taken between sophomore and junior years. The work includes the preliminary location and construction, surveys for a short line railroad, (about 2 miles), with maps, profiles, and estimates for same; all surveys, maps, profiles and estimates for a short line of highway, (about 2 miles); surveys for a dam and lake formed thereby; also gauging of stream flow with current meter. The time required for this course is *four weeks, forty-eight hours per week.*

The Institute furnishes tents, cots, camp stools, and all equipment of mess tents. The student will furnish his own bedding, soap and towels. A charge of $18.00, payable in advance, will be made for each course and will be applied to payment of the expense of the camp.

GRADUATE STUDENTS.

121. Graduate engineering course: This course requires three hours a week to be devoted to recitations and five hours a week to practical work in field or drafting room, throughout the session. The subjects may be varied to fit the needs of the students taking the course, but will be chosen from the following: Reinforced concrete; bridge design; sewerage and water supply; specifications and contracts.

122. Thesis: Graduate students applying for the degree of civil engineer will be required to prepare and present a thesis, the regulations governing thesis work being the same as those prescribed for seniors.

ELECTRICAL ENGINEERING

PROFESSOR DUNSTAN.
PROFESSOR HILL.
ASSISTANT PROFESSOR WOOTEN.
ASSISTANT SPANN.
ASSISTANT RIVES.

JUNIOR CLASS.

201. Elementary theory of electricity and magnetism: A detailed study of the fundamental phenomena and laws of the subject. *Three hours, first term.*

202. Direct current machinery: Lectures and recitations on the principles of design, construction, installation, and operation of direct current generators and motors. This course treats in detail of the selection of machinery for given conditions, performance guarantees, acceptance tests for heating, regulation, efficiencies, etc., parallel running, troubles and remedies, and repairs. A large number of carefully selected problems are assigned for solution and every effort is made to have the course cover not only the fundamental principles but also the broader engineering problems connected with the choice and use of this class of machinery. *Three hours, second term.*

203. Central station appliances and distribution for lighting and power service by direct currents: This course treats in detail of switch boards and appliances, calculation of circuits of various kinds, arc and incandescent lighting, metering, systems of charging for service, economics of generating plants. *Three hours, third term.*

204. Elementary theory of electricity and magnetism: For non-electrical engineering students. This course is similar to course 201, though not so detailed in treatment. *Two hours, first and second terms.*

204a. The construction and operation of both direct and alternating current machines; tests for efficiency, regulation and heating; the generation and distribution of electric power. In this course, it is intended to cover the application of electricity to the operation of machinery. For non-electrical students. *Two hours, third term.*

205. Electrical measurements and tests: For students in electrical engineering and mechanical engineering. The course consists of lectures and recitations upon the measurements of current, voltage, resistance, capacities, magnetic measurements, stray power, brake tests, heat runs, and related subjects. *One hour, entire session.*

206. Laboratory work: For students in electrical engineering and mechanical engineering. The course consists of galvanometer work, resistance measurements of various kinds, magnetic measurements and various tests. *Four hours, first term.*

207. Laboratory work: For students in electrical engineering and mechanical engineering. The second term is devoted to the operation of direct current motors and dynamos, characteristics of direct current machinery, methods of adjusting, compounding, etc. *Four hours, second term.*

208. Laboratory work: For students in electrical engineering and mechanical engineering. Efficiency tests, location of troubles on machine and line, switch boards and appliances, and general experience in the operation of a direct current station, are given. *Four hours, third term.*

SENIOR CLASS.

210. Theory of alternating currents: Lectures, recitations, and problems upon the phenomena of alternating current circuits, inductances, etc. The course is introductory to the subject of alternating current machinery, and in order to take it, students must have a fair working knowledge of differential and integral calculus and vector algebra. *Five hours, first term.*

211. Alternating current machinery: Lectures and recitations upon alternating current generators, calculation of alternator voltage regulation by various methods, parallel running, transformers, induction motors, single phase commutator motors, synchronous motors, rotaries, etc.; harmonic analysis of wave forms, the expression of the same in Fourier series and calculation of the current produced in various circuits.

The course is somewhat advanced and in order to take it satisfactorily students must have a good knowledge of the mathematical theory of alternating currents. *Five hours, second term.*

212. Transmission lines: Lectures and recitations upon line inductance and capacity, the application of hyperbolic functions to the calculation of the regulation of long transmission lines, effect of harmonics in E. M. F. waves, surges, etc. Stresses in conductors, line construction and related topics. *Five hours, third term.*

213. Laboratory work: Operation of alternating current machinery, determination of data for calculation of alternator regulation, direct determination of regulation, efficiency tests, transformer connections, transformer testing for efficiency and regulation, induction motor testing, circle diagram. Brake tests, single phase induction motors, synchronous motors, V-

curves, rotaries, synchronizing, etc. The work during the third term consists chiefly in the determination of data for the student's thesis. *Four hours, entire session.*

214. Electric railway engineering: A detailed study of the subject of street and interurban electric railway service covering train resistance, grades, curves, line and track, car and power plant equipment, both direct and alternating currents, sub-station, single phase equipment, and related topics.

The course consists of recitations and lectures with constant reference to current numbers of various technical journals. *Two hours per week, one term.*

215. Telephone engineering: History and development of telephone types, designs of telephone parts, sub-station equipment, magneto and common battery switch boards, exchange equipment, telephone power plants, over head and under ground circuits, protectors, coin collectors and meters, party lines, private branch exchanges, first and intercommunicating systems, trunking, and toll boards. *Two hours, first and second terms.*

216. Telephone laboratory: Details of telephone constructions, association of parts, assembly of switch board parts, storage batteries, tests for location of faults in cables and lines, capacity and insulation tests, details of common battery and magneto switch boards, trunking schemes, etc. *Two hours, first and second terms.*

217. Electrical engineering: For senior mechanical engineering students. Direct current motors and generators, street railways, circuits, alternating currents, and alternating current machinery. This course is less detailed than the courses for electrical engineering students, but aims to cover the field in a more generalized manner. *Three hours, first term.*

218. Laboratory work: For seniors in mechanical engineering. This course is given in connection with course 217, and gives practice in the operation and testing of electrical machinery of various kinds. *Four hours, first term.*

219. Contracts and specifications: For seniors in the courses of electrical engineering and mechanical engineering. Lectures and recitations upon engineering specifications and the elements of the laws of contracts. Considerable time is devoted to exercises in writing specifications covering machinery and engineering projects. These specifications are read to the class and the students are required to offer criticism on each set. *Two hours, third term.*

220. Power plant: For students taking the special course in applied electricity. The purpose is to familiarize the stu-

dent with the operation of engines, pumps, generators, motors, switchboard appliances and boilers. All students in this course are expected to work under the power house engineer. *Four hours, entire session.*

WIRELESS TELEGRAPHY.

221. In response to a considerable demand it has been decided to offer a special course in wireless telegraphy. The practice work in this subject will be under the charge of a licensed wireless operator. Every effort will be made to offer to students opportunities to become familiar with the setting up, installation, and testing of wireless apparatus, as well as becoming expert in sending and receiving.

The requirements for entrance to this course will be similar to those for entrance upon the two-year course in applied electricity.

Wireless messages are constantly being picked up with the wireless station, these messages coming from ships at sea, and from various wireless stations along the Atlantic Coast.

The course of study is the same as that of the first year in the two-year course in applied electricity, with the exception that four hours of wireless telegraph study and practice will be substituted for four hours power house work.

MECHANICAL ENGINEERING.

PROFESSOR WILMORE.
INSTRUCTOR STOKES.
INSTRUCTOR HIXON.
INSTRUCTOR ASKEW.
ASSISTANT WEAVER.
ASSISTANT HAYNIE.
LABORATORY ASSISTANT BIBB.
LABORATORY ASSISTANT DAVIS.

The following courses are offered in this department:

FRESHMAN CLASS.

Students who have credit for a course saisfactorily completed in an accredited high school will be assigned to other work.

351. Shop work—carpentry: The lessons include instruction in the nature and use of tools; instruction and practice in shop drawing; elementary work with the plane, saw, chisel; the construction of different kinds of joints, timber splices, cross joints, mortise and tenon, mitre and frame work, and

dove tail work, comprising the different joints used in cabinet work, and examples of framing roof trusses. Students who have had previous experience in the use of tools or who show special proficiency, are given work of an advanced character. *Six hours, one term.*

352. Shop work—Wood turning: The instruction includes the nature and use of the lathe and tools, and the lessons comprise plain, straight turning, caliper work to different diameters and lengths, simple and compound curves, screw plates and chuck work, hollow and spherical turning. *Six hours, one term.*

353. Shop work—pattern making: The course includes work in whole and split patterns in wood for solid and cored castings, and core boxes for producing the necessary cores. The characteristics of the different kinds of timber used for patterns are studied, and attention is called to allowances necessary for shrinkage and draft. The patterns are intended to be used by the students in their subsequent work in the foundry. *Six hours, one term.*

SOPHOMORE CLASS.

312. Applied mechanics: Required of students in engineering courses. The fundamental laws of mechanical science are studied while special attention is given to the practical application of these principles to engineering work. *Three hours, second and third terms.*

361. Shop work—forging: A text-book is used from which is learned something of the characteristics of the metals and the best methods of working them. The lessons are so arranged as to make the student familiar with the handling of the tools and the successive steps in working metals by hand. Exercises in drawing, upsetting and bending, cutting, punching, and welding by various methods, are given, together with a course in steel forging, including hardening, tempering, and case hardening. *Four hours, first term.*

362. Shop work—foundry: Required of all students except those taking agriculture. The work for the most part consists of small articles, such as light machine parts and stock pieces used for the exercise work in the machine shop. A sufficient variety is introduced for the student to acquire a good general knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand and two part flasks, but some core work and more complicated work is introduced to illustrate the processes, as well as to furnish the castings for the advanced work in the machine shop. Instruction is given in operating the cupola,

and from time to time lectures and recitations are held on the metallurgy and working of the metals used in the industrial arts. *Four hours, second term and five hours third term.*

JUNIOR CLASS.

321. Practical mechanics: Required of students who take machine shop work. The instruction consists of recitations and lectures on general machine shop work. The construction, use, and limitations of the various machine tools, the forms of cutting tools and methods of grinding them, and the form and use of jigs and gauges, are studied, together with instruction in machine management, and time and cost keeping. *One hour, entire session.*

322. Strength of materials: Required of students in the engineering courses. The properties and characteristics of the materials of engineering construction are studied, and the development of the methods of calculating their strength under different conditions of stress is explained. Many problems involving the strength of beams, girders, columns, and shafts are worked out. *Three hours, second and third terms.*

371. Shop work: Required of students in the courses of mechanical engineering and electrical engineering. This work is divided into two parts:

(a) A course of chipping and filing. The lessons comprise work on cast iron and wrought iron, and consist in chipping to line on flat and curved surfaces, key seating, filing, and finishing to line, surface filing, slotting, pin and screw filing, and surface finishing with scraper.

(b) A course in machine work: The materials worked on include cast iron, wrought iron, steel and brass. Exercises are given in turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling in the lathe and drill press, reaming, boring, screw cutting in lathe and with taps and dies. Practice is given in working the planer, shaper, and milling machine. In the last part of the year, some work in tool making is given, such as making taps, reamers, and milling cutters. Some sort of construction or repair work for the department is always on the shop floor and students who are well advanced in their work have opportunity to gain additional practice and experience by assisting with this. *Six hours, entire session.*

374. Shop work: Required of students in the course of mining engineering and elective for juniors in the course of civil engineering. The work includes courses (a) and (b) as described in course 371 just preceding, except the amount of work required is less in proportion to the time consumed.

All shop work is done from blue prints and blackboard sketches. For the preliminary exercise work, special instruction sheets are prepared and given out to each student with the stock for the exercises. These sheets explain in detail each step in the process of producing the exercise, and are intended to supplement the individual instruction of the instructor. In the construction work it is the purpose to select some simple machine and build two or more of them on the interchangeable system. Jigs and templates are built to accomplish this result as far as possible. A system of time keeping is in force in the shop. At the end of the week each student makes out his time card, describing the work he has done during the week, and giving the number of hours spent on each job. *Four hours, entire session.*

377. Laboratory: Required of juniors in the courses of mechanical engineering and electrical engineering. The work will consist in the adjustment and calibration of instruments used in engineering work, and the adjustment and operation of gas, gasoline, and steam engines. Tests will be made to determine the efficiency of mechanisms, such as hoists, jack screws, gearing, belts and other transmission devices, together with some work in valve setting and power measurements of steam engine. Complete and accurate written reports of each experiment are required. *Two hours, third term.*

SENIOR CLASS.

331. Power plant engineering: Required of students in the courses of mechanical engineering and electrical engineering. The work of the course consists of a study of the practical applications of steam machinery. It is believed that a thorough knowledge of the apparatus in actual practical use is the best preparation a student can have for the study of the theory, and to that end, the different types of engines, boilers, pumps, condensers, and other auxiliary apparatus are taken up and studied in detail, and the advantages of each are discussed. Extensive files of manufacturers' catalogues are kept, and the technical papers and magazines in the library are freely used in order to keep in touch with the latest and best practice in engineering work. *Five hours, second half year.*

332. Thermodynamics: Required of students in the courses of mechanical engineering and electrical engineering. The subject is first studied from the ideal standpoint, and later the applications are made to hot air engines, gas and gasoline engines, and steam engines, and also to air compressors and refrigerating machines. The temperature-entropy method of analysis is used in explaining heat transfers, and in general,

graphical methods are used in preference to analytical ones when they can be made to serve the purpose equally well. In this course will be given instruction in indicator practice and the interpretation and working up of indicator diagrams from steam engines, gas engines, air compressors, and refrigerating machines. *Five hours, first half year.*

334. Heating and ventilating: The different methods of heating and ventilating buildings are treated. A study is made of the relative efficiency of hot water, steam, and warm air as mediums for heating different kinds of buildings, and special attention is given to the design and operations of healthful heating systems for residences. *Two hours, first term.*

336. Refrigeration: Required of students in the course in mechanical engineering. The theory of the refrigeration process is studied together with its applications to commercial plants. The advantages of the various mediums, as ammonia, carbon dioxide and others are discussed, as well as methods of insulation and plant arrangement. *Two hours, second and third terms.*

381. Laboratory: Required of students in mechanical engineering and electrical engineering. This work includes fuel analysis and heat determination, flue gas analysis and the study of combustion, oil and lubricant testing, and valve setting and indicator analysis. *Four hours, first term.*

382. Laboratory: Required of students in mechanical engineering and civil engineering and optional in electrical engineering. The course includes work in testing the strength of materials, as iron, steel, wood, and cement in tension, compression, and transverse loading, and the calibration of weirs, nozzles, and meters, a study of the flow of water in pipes, and the testing of hydraulic motors and pumps. *Four hours, second term.*

383. Laboratory: Required of students in mechanical engineering and electrical engineering. The work includes tests of engines, boilers, pumps, gas and gasoline engines, complete power plants, and when opportunity offers, tests of commercial power plants. *Two hours, third term.*

384. Thesis: Each applicant for a degree is required to prepare and hand in a thesis. This thesis may consist of a design, a study of some engineering problem involving a series of tests, or a study involving the collection and analysis of data and material on some engineering subject with a statement of definite conclusions derived therefrom. Preliminary work shall begin with the first term and weekly reports of progress made. The thesis proper shall be handed in to the professor

in charge not later than May 1. The student shall prepare and hand in two papers or reports on some portion of his thesis or some allied subject, approved by the professor, one during the first term and one during the second term. Credit as laboratory work. *Two hours, first and second terms, four hours, third term.*

GRADUATE STUDENTS.

391. Laboratory: This course is arranged to suit the work being carried by the students, and the hours are adjusted to suit their available time.

341. Steam turbines: The theory, design, and structural details of the different types of modern steam turbines are studied, and complete designs are worked out. *Three hours, first term.*

342. Power plant design and economics: The economics of power plant design, the relation of the different elements of a power plant to each other, and the conditions of maximum efficiency are studied. Plants are designed to give the highest efficiency under specified conditions, and actual plants are studied to discover, if possible, sources of additional economy in operation. *Three hours, third term.*

343. Works management: Methods of cost keeping, systems of organizing and paying labor, depreciation of plant, accounting and business organization are studied. Many problems are solved, including the lay out of buildings and machinery for manufacturing plants. *Three hours, third term.*

SPECIAL STUDENTS.

Special students who have the necessary preparation may be admitted to any of the classes in this department. For the benefit of students who, for any reason, are not able to remain in college to complete the full course, but who wish some training in drawing and shop practice, a special two-year course has been arranged. This course is particularly recommended to young men who contemplate entering the mechanical trades either preceding or following the apprenticeship period. In many cases this work has been accepted as equivalent to a part of the apprenticeship period and the time of the latter shortened thereby. The drawing and mathematics are invaluable tools in any of the trades, and work in the different shops enables the apprentice to become familiar with the principles of the trades allied to his own.

The following courses are offered to students in the special Two-Year Course in Applied Electricity, and to any other students who may desire to take them.

3S1. Steam engines and boilers: An elementary descriptive

course in which attention is called to the different types of engines and boilers, methods of setting, valve gears and valve setting, piping systems and auxiliary apparatus for power plants. *Three hours, first term.*

3S2. Gas engines: A descriptive course in gas, gasoline and oil engines; different cycles, methods of ignition, troubles and remedies. *Three hours, second term.*

3S3. Transmission of power: Shafting, pulleys, bearings, belting, gearing, aligning of shafting, calculation of pulley and gear sizes, power of belts, lubrication and lubricating systems. *Third term, three hours.*

3S4. Manual training for teachers: Courses in elementary wood work and iron work are offered. These courses will be adapted as far as possible to the individual needs of those taking the courses, and in addition to the shop work will include lectures and conferences on the organization of courses and the equipment of shops for manual training. *Hours to be arranged.*

MINING ENGINEERING AND GEOLOGY.

PROFESSOR BROWN.
ASSISTANT GILMOUR.

JUNIOR CLASS.

401. Mine surveying: All general surveying as given by the civil engineering department previous to the junior year is required for this course. The work covers general surveying methods as applied to conditions prevailing at mining properties, both underground and at the surface. The student is required to work out practical problems that he will be likely to meet in actual practice. *Five hours, first half of first term.*

Text-book: Durham's Mine Surveying.

402. Coal mining: For those who have taken course 401 and its prerequisites. This course includes the following:

Examination of coal properties; drifts, slopes and shafts; methods of working; plans of mines; coal-cutting machinery; trackwork; haulage; mine ventilation; coal washing; coking in beehive ovens; by-product coking. *Five hours from first mid-term to end of session.*

403. Junior drafting: The course includes free-hand lettering, mapping, detailed drawings to scale of various structures relating to mines, design of mine cars, design of ventilating fans. *Five hours, entire session.*

404. Summer course: The time will be divided between a study of gold mining and milling at Alexander City; coal min-

ing, washing, and coking at Birmingham, and iron ore mining at Birmingham. Surveys and reports will be required. *Four weeks immediately following commencement between junior and senior years.*

SENIOR CLASS.

411. Mining: Modes of occurrence and origin of the various ores and economically valuable mineral deposits. Prospecting and examination of mineral properties, including boring by different methods. Methods of opening up mineral deposits, breaking ground, supporting excavations, developing and working coal and metalliferous deposits, haulage, hoisting, drainage, ventilation, lighting and provisions for ascent and descent. The last term is devoted to the design of mine structures such as head frames (timber and steel), coal tipples, mine buildings. *Three hours, entire session.*

412. Drafting: Map work consisting of the plotting of notes taken on summer trip between junior and senior years; drafting accompanying design of mine structures; original work in connection with thesis. *Four hours, entire session.*

413. Laboratory course: For seniors in mining engineering and chemistry and metallurgy. The work includes crushing, sampling, concentration, stampmilling, amalgamation and cyaniding. *Three hours, entire session.*

Text-books: Coal and Metal Miner's Pocket Book, and International Text Books.

421. Graduate course: This course is offered to those who desire to pursue the subjects related to mining beyond the scope to which the two years' course limits them. The work will be arranged to meet the requirements of those desiring to take it.

GEOLOGY.

JUNIOR CLASS.

431. Crystallography: For students in the courses in civil engineering, mining engineering, and chemistry and metallurgy. A thorough study is made of the crystal systems with the aid of a full set of crystal models and natural crystals. Special emphasis is laid upon the more practical features which will be of service in further mineralogical work. *Four hours, first mid-term.*

Text-book: Bayley's Elementary Crystallography.

432. Mineralogy: For juniors in the courses of civil engineering, mining engineering, and chemistry and metallurgy. The course consists of a thorough study of a large number of

minerals from the standpoint of their physical characteristics. A good type collection of minerals is kept in the laboratory for comparison. An effort is made to have the student become familiar with economically important ores and non-metallic minerals, and the common rock-forming minerals so that he can identify them at sight by the application of a few simple tests. *Four hours, one and one-half terms.*

Text-book: Butler's Handbook of Minerals.

433. Lithology: For those who have satisfactorily completed course 432. This deals with the combinations of minerals in the make-up of rocks, and aims to bring out structure, texture, crystallization and mineralogical composition sufficiently to enable the student to recognize the commoner rocks in the sedimentary, igneous and amorphic classes. *Four hours, third term.*

Text-book: Kemp's Handbook of Rocks.

434. Agricultural geology: For juniors in agriculture. This course deals with the structure, composition and other characteristics of the different classes of rocks; the general principles involved in rock-weathering; special cases of rock-weathering; transportation and redeposition of rock debris; classification and character of resulting soils. *Two hours, second and third terms.*

Text-books: Merrill's Rocks, Rock-Weathering and Soils.

435. General geology: See course 441.

436. Engineering geology: The rock forming minerals; the general characters, mode of occurrence and origin of rocks; structural features and metamorphism of rocks; rock-weathering; surface waters; underground waters; landslides and their effects; wave action and shore currents; lakes, their origin, and relation to engineering work; glacial deposits, their origin, structure and economic bearing; building stone; limes, cement and plaster; clay and clay products; coals; petroleum, natural gas and other hydrocarbons; road foundations and road materials; ore deposits. Required of special students in mining engineering. *Two hours, entire session.*

SENIOR CLASS.

441. General geology: For juniors in the course of mining engineering, and chemistry and metallurgy, and for seniors in the courses of civil engineering and general course. The course covers dynamic geology, structural geology, geomorphology, and historical geology in the order named. The lectures and recitations are supplemented by laboratory instruction and geological excursions. *Two hours, entire session.*

Text-book: Chamberlain and Salisbury's College Geology.

442. Economic geology, non-metallic minerals: For seniors in the courses in mining engineering, and chemistry and metallurgy. The course is presented by lectures and recitations and includes the study of modes of occurrence, distribution, origin and uses of coal, petroleum, limestone, salines, gypsums, fertilizers, abrasives, minor non-metallic minerals and mineral waters. *Two hours, first term.*

Text-book: Riess' Economic Geology of the United States. (Revised.)

443. Economic geology, metallic minerals: For students who have taken course 442. The work includes a study of the ores of iron, copper, lead, zinc, gold, silver, silver-lead, aluminum, manganese, mercury, and the minor metals. *Two hours, third term.*

Textbook: Reiss' Economic Geology of the United States. (Revised.)

444. Methods of teaching physical geography: Especially adapted to the secondary schools of the State. In the course in general geology will be found much that is especially appliable to physical geography. It takes up a study of subterranean and surface agencies both as to their destructive and constructive processes. The results of these processes are then taken up in a study of the topography of the surface of the earth and under the following heads: The geographic cycle; land sculpture; topography as determined by faults and joints; adjustment of rivers; sea coasts; mountain ranges. Students desiring extra work in this subject may arrange for a three-hour course. *Two hours a week, first and second terms.*

ARCHITECTURE.

PROFESSOR HUDNUT.

ASSISTANT MONTGOMERY.

The department of Architecture was established in June, 1907, to comply with an increasing demand for instruction in this subject and to encourage students to take up a profession which hitherto could be pursued only after an expensive term of study in the North.

The course as planned leads to the degree of B. S. in architecture after a period of four years' study, of which the first is devoted to those preliminary courses required of freshmen in all departments, while the other three are devoted partly to those technical courses which form the foundation of an architect's training and partly to certain cultural subjects

which, though less obviously necessary, are nevertheless essential.

The curriculum recognizes the fact that only a part of an architect's training can be obtained in class room and laboratories; a large part must be obtained by experience in the offices of practicing architects. The immediate aim of the school is not therefore to give the student a complete knowledge of all the materials and processes of building nor yet to give him complete mastery of all the subtleties of architectural drawing and design. The aim is rather to give him that wide sympathy with intellectual culture which ought to distinguish the successful architect, and at the same time to give him a clear understanding of the more fundamental technical principles of his profession. In addition the student will acquire as great a facility in drawing as can reasonably be expected after three years of daily practice.

The following courses are required of all students in this department:

SOPHOMORE CLASS.

501. Architectural drawing and design: An introductory course in simple architectural elements (the orders and their application) precedes the study problems in design which occupy the major part of the sophomore, junior and senior years. This work in design is conducted under the rules and the programs of the *Society of Beaux Arts Architects*. Students are expected to earn not less than nine "points" credit during the three years spent in the study of design. *Ten hours, entire session.*

521. Building construction: This course consists of two parts: First, a theoretical study of building materials and methods, and, second, actual practice in making working drawings, specifications, and details. The first year's work is concerned largely with carpentry of all kinds, especially in connection with the construction of frame buildings. Lectures and quizzes, supplemented by two afternoons each week in the draughting room. Text-books: Martin's *Details of Building Construction* and Kidder's *Building Construction and Superintendence. Seven hours, entire session.*

511. Freehand drawing: Elementary exercises in drawing from plates, casts, and natural objects, in pencil and wash. *Four hours, entire session.*

JUNIOR CLASS.

502. Architectural drawing and design: A continuation of course 501. The *Analytiques* and *Projets* of the *Society of*

Beaux Arts Architects. Lectures on the theory of design. *Ten hours, entire session.*

522. Building construction: A continuation of course 521. A study of building materials in theory and practice. The second year is devoted to mason's work (brick, stone, concrete, etc.), and to the mechanics of building construction. Texts: Kidder's *Building Construction and Superintendence* and Adams' *The Mechanics of Building Construction. Seven hours, entire session.*

512. Freehand drawing: Charcoal drawing from casts. Drawing in wash from plates and natural objects. *Four hours, entire session.*

532. History of architecture: A technical and historical study of the development of architecture from the earliest times to the fall of the Roman Empire. The work is carried on by means of lantern-slide lectures supplemented by research in the library. Essays on specified topics, with sketches and tracings. *Four hours, entire session.*

SENIOR CLASS.

503. Architectural drawing and design: A continuation of course 502. The *Projets* of the *Society of Beaux Arts Architects.* Lectures on the theory of design. *Fourteen hours, entire session.*

513. Freehand drawing: Practice in water color drawing from plates, natural objects, and from artificial objects. Outdoor sketching in last term. *Four hours, entire session.*

533. History of architecture: A technical and historical study of the architecture of the Renaissance in Italy, France, England, and the English colonies in America. Lectures, library research, and essays. *Four hours, entire session.*

MACHINE DESIGN AND MECHANICAL DRAWING.

PROFESSOR FULLAN.
ASSISTANT PROFESSOR THOMAS.
ASSISTANT GAMMAGE.
ASSISTANT FINCKEN.

The following courses are offered in this department:

FRESHMAN CLASS.

601. Mechanical drawing: This course in drawing is of general educational value, and is required of students in all courses. The object of the course is to train the mind through the eye and hand with the applications of geometry to drawin-

Accuracy, neatness, and the correct use and the care of instruments, are given special attention.

The work is given in the following order:

(1) Freehand drawing and freehand lettering.

(2) Linear drawing—geometrical construction.

(3) Orthographic projection, sections, and intersections.

(4) Development of surfaces and the construction of models.

(5) Isometric, Cavalier, and dimetric projections.

(6) Study of working drawings, making tracings and blue prints.

(7) During the third term, in lieu of (5) above, a course in agricultural drafting is given freshman students in agriculture and is arranged for the purpose of assisting them to a knowledge of the principles of mechanical drawing and their application to the farm. The course consists of drawings in the following lines of work:

(a) Farm maps: topographical drawing; topographical conventions; maps and plots; layout for farm buildings, outhouses, and grounds.

(b) Building construction: Plan, elevation, and section; details, framing joints; building materials; layout of plumbing and water supply on the farm; plans for barns, hayracks, and roof construction; and framing for houses, etc.

(c) Concrete forms: simple forms; steps and stair forms; wall forms; layout of forms for silo building; watering troughs and fence posts.

Freehand drawing of geometrical subjects is given early in the course. It provides training of a certain definite nature by developing close observation and accuracy in representing the forms of models used in the work. Freehand lettering of standard practice is strongly emphasized throughout the entire course. The construction and application of Roman and Gothic capitals and small letters to working drawings and the arrangement and design of formal titles are treated in this division.

Under the head of linear drawing, special attention is given to the proper use and care of instruments. The most useful of the geometrical constructions are worked out in pencil and afterwards carefully inked.

Orthographic projection with sections and intersections is given in the beginning of the second term and is a prerequisite to course 602 in descriptive geometry. Developments of surfaces are made and paper models of the objects are constructed from these developments. The construction of these models [illegible] the property of more firmly fixing the principles involved

in the preceding division in the mind of the student and is given special attention.

In the third term pictorial representations of objects are given by means of single-view projections, isometric, cavalier, and dimetric. The paper models made by the pupil are now used for subjects. A number of working drawings of familiar objects are required in the last part of the year. Penciled drawings to scale, tracings, and blue prints of these objects are made by each member of the class. *Five hours, entire session.*

SOPHOMORE CLASS.

602. Descriptive geometry: Required of all students preparing for engineering and architectural courses. The work is given by lectures, written recitations, and drafting room instruction. In this course, theory and practice are combined with the purpose of training the student in the graphical expression of ideas. The instruction includes problems relating to the point, straight line, and plane; tangents and normals; to cylindrical, conical, and warped surfaces, to sections, intersections, and developments; to shades, shadows, and perspective; and is intended to develop in the mind of the student a clear concept of magnitudes in space. The lectures and written recitations are to impart principles and to permit the instructor to meet the entire class, and, with diagrams and models, supplement the work of the text. The drawing, two hours per week, consists of plates of problems, which are selected from the text-book and other sources. *Four hours, entire session.*

JUNIOR CLASS.

604. Kinematics of machinery: Required in the courses of mechanical engineering and electrical engineering. Under this head, machines are analyzed and their elementary combinations of mechanism are studied. Motions and velocities, instantaneous centers, kinematic chains, velocity diagrams, parallel and straight line motion mechanisms, are given early in this course. The communication of motion by means of gear wheels, belts, cams, screws, and link work, and the different ways of obtaining definite velocity ratios and definite changes of velocities in machine parts are investigated. Problems in designing quick return motions, trains of mechanisms for various purposes, and gear trains, are treated. Illustrated lectures with the lantern, showing practical applications of mechanism to the design of machinery, are given at intervals throughout the course. *Three hours, first term.*

605. Graphic statics of mechanism: Required in course of

mechanical engineering. The lectures provide a brief course in graphic statics, graphical statics of mechanism, and in the design of structures, including roof trusses for factory buildings, crane frames, girders, and water-tank towers. The stresses in machines and structures are investigated by graphical methods, which are carefully checked in the beginning, by analytical proofs. This course includes the solution by graphical methods of such problems, before which analytical methods are comparatively impotent, as those which involve the friction losses in machines, and of the determination of the efficiency of mechanisms. The graphical method is also applied to dynamics by problems in the balancing of engine crankshafts working under specified conditions. The use of manufacturers' handbooks and drafting-room practice are given special attention. *One hour, entire session.*

606. Machine design: Required in the courses of electrical engineering and mechanical engineering. Instruction is given in the design of fastenings and machine parts, and in the general methods of arranging views. This course includes the design of cams, gear tooth outlines, quick-return motions, and link-work combinations, which supplements course 604, in kinematics. Scale drawings of simple machines are made from dimensioned sketches, which each student makes for himself from an actual machine or model. Tracings and blue prints are made from these drawings. All the instruction is intended to familiarize the students with modern drafting-room methods. *Four hours, entire session.*

SENIOR CLASS.

607. Machine design—lectures: Required in the courses of mechanical engineering and electrical engineering. These lectures are intended to cover the general instructions to the students, such as the selection of materials for different machine parts, the rules for proportion of parts to secure strength, symmetry, and cheapness of manufacture, and the best methods of making, recording and preserving the calculations incidental to the design of a complete machine. Much valuable engineering data of current nature in the form of notes are given as a supplement to the text-book. Illustrated lantern lectures on subjects related to the course are given at intervals during the year. *One hour, entire session.*

608. Machine design—drawing: Required in the course in mechanical engineering. This is a continuation of the junior course in machine design. Original problems involving the design of complete machines to work under specified conditions are assigned and the student develops the idea in the

form of sketches. These are submitted to the instructor for criticism and are afterwards embodied in complete detail and assembly drawings. The calculations of each design are written up neatly and filed with the drawings. Special attention is given to the strength of the parts, to the harmonious and symmetrical appearance of the complete machine, and to the details as regards practical manufacture. *Six hours, entire session.*

609. Machine design—drawing: Required in the course in electrical engineering. The work given and the methods pursued are similar to those described in course 608, just preceding, but the amount of work required is reduced in proportion to the amount of time given to the subject. *Three hours, entire session.*

GRADUATE STUDENTS.

610. The work offered during the post-graduate year is an extension of that of the senior year. More of the theory of the subject is taught, more intricate machines are involved, and problems are given involving the design of a series of machines for manufacturing some specific article. The problems arising in the design of a line of machines of different sizes are also taken up, including the applications of graphical methods and the use of factors of enlargement and reduction. Special attention is given to the effect of current practice on the proportion of machine parts.

A research study into the Patent Office records of some machine or device is offered in this course. This feature is to develop the inventive capacity of the student, and is given special attention.

Suitable text and reference books are used.

611. Methods of teaching drawing and descriptive geometry: A course in the methods of teaching drawing and descriptive geometry is given to those who wish to prepare for teaching these branches. This course includes advanced work in shape of problems, supplemented by frequent conferences with the instructor, a full bibliography of works on the subjects, and an extended course in reading.

Those who desire to avail themselves of an opportunity to practice the teaching of the subjects may be permitted to attend the meetings of the large classes in elementary work for the purpose of observing methods of teaching.

Those who show sufficient preparation may be allowed to

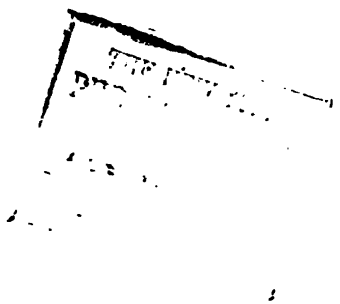
assist in tutoring delinquent students and those who enter conditioned.

Special attention is given to the subject of drawing as taught in high school work.

612. Thesis: A thesis taken in this department may be a study of some machine or its parts; research in records of subjects relating to the work of the department; or, a study of current practice in the design of some specific machine. It is required to be written in parts, one of which is to be presented at the end of each term. The complete thesis is due on May 1st.

TEXT-BOOKS.

Cross' Mechanical Drawing, Jamieson's Isometric Drawing, Phillips and Millar's Essentials of Descriptive Geometry, French's Engineering Drawing, Keown's Mechanism, Spooner's Machine Design, Smith and Marx's Machine Design, Cathcart and Chaffee's Graphics, Halsay's Hand-book Machine Design.



Comer Agricultural Hall

COLLEGE OF AGRICULTURAL SCIENCES

CHEMISTRY.

PROFESSOR ROSS.
PROFESSOR HARE.
ASSOCIATE PROFESSOR BRAGG.
ASSISTANT PROFESSOR POWELL.
INSTRUCTOR MARSH.
ASSISTANT MARTIN.
ASSISTANT PIPKIN.
ASSISTANT BASORE.

Instruction in this department embraces the following courses of lectures, systematic laboratory work being given in connection with each course for the practice of chemical analysis and chemical research:

FRESHMAN CLASS.

101. Course in general chemistry: This consists of a series of lectures including a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties, and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form. *Four hours, entire session.*

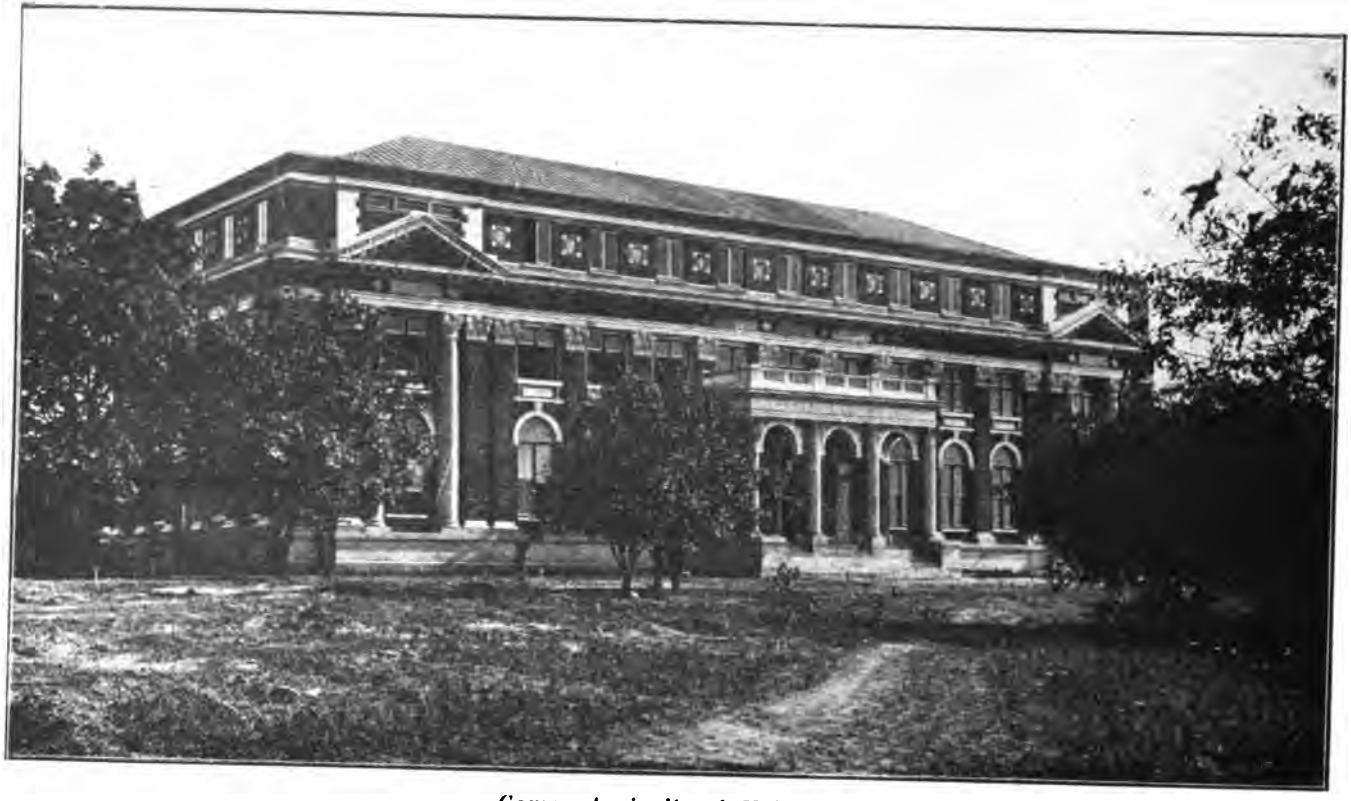
REFERENCE BOOKS.

McPherson and Henderson's General Chemistry, Newth, Holleman, Smith, Mellor, Chemical Journals.

SOPHOMORE CLASS.

103 (b). Organic chemistry: This course, though somewhat more condensed, is similar to 103 (a), with the exception that the latter portion of the course is devoted to a special study of fats, carbohydrates and proteins with reference to their functions in the life processes of plants and animals. *Three hours, first and second terms.*

105. Agricultural chemistry: This course consists of lectures on chemistry in its application to agriculture and includes a thorough discussion of the origin, composition, and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of



Comer Agricultural Hall

COLLEGE OF AGRICULTURAL SCIENCES

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SOPHOMORE CLASS.

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Comer Agricultural Hall

COLLEGE OF AGRICULTURAL SCIENCES

CHEMISTRY.

[illegible]

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[illegible]

101. Course in general chemistry. This consists of a series of lectures including a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties and classification of the metallic and non-metallic elements with the more basic and principles of organic chemistry. In this course the more common applications of chemistry in the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved instruments necessary for presenting the subject in the most effective and attractive form. Four hours each week.

[illegible]

McPherson and Henderson, General Chemistry; Remsen, Inorganic Chemistry; Smith, Elementary Chemistry.

[illegible]

102 (b). Organic chemistry. This course, though sufficiently more condensed, is similar to 102 (a), with the exception that the latter portion of the course is devoted chiefly to fats, carbohydrates and proteins with reference to their functions in the life processes of plants and animals. Three hours, first and second terms.

105. Agricultural chemistry. This course consists of lectures on chemistry as it applies to agriculture, and includes a thorough discussion of the soil, its physical and chemical relations to plants, the composition and growth of plants, the sources of plant food and the methods of improvement of

dents who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles and the common re-agents and apparatus used in the qualitative and quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from his contingent fee.

SOPHOMORE CLASS.

(a) All students in the courses in agriculture, chemistry and metallurgy, chemical engineering, and mining engineering are required to take practical laboratory work. Students in the course in pharmacy upon application, may be allowed to take this work.

The work of this course embraces the preparation of a number of non-metallic elements and some of the more important inorganic compounds, the identification of metals by means of the blowpipe, and the qualitative separation and detection of the bases and acids.

JUNIOR CLASS.

110 (b). A course in quantitative analysis, embracing gravimetric and volumetric analysis and including the analysis of limestones, iron ores, etc. *Six hours, entire session.*

SENIOR CLASS.

(c). A course in quantitative analysis, including analysis of fertilizers, soils, coals, ores, iron and steel, sugars and sugar products, feed stuffs, mineral waters, fluxes, slags, cinders, furnace gases, etc. The nature of the work is varied somewhat to suit the individual object of the student. *Six hours, entire session.*

(d). The laboratory course provided for students in the course in mining engineering embraces work in quantitative analysis, including assaying. In the latter portion of the course, especial attention is given to metallurgical analysis and the fire assay of ores of gold, silver, and other important metals. *Eight hours, entire session.*

(e). In the courses in pharmacy and veterinary science, instruction in urine analysis and in toxicology and toxical analysis is given during the last term.

(f). In the junior year, a laboratory course in organic chemistry is provided for students in the course in chemical engineering throughout the entire year, and for students in the

course in chemistry and metallurgy during the third term. *Four hours, entire session.*

The short course includes systematic laboratory work in organic preparations, while the longer course embraces work in organic analysis, as well as in preparations.

112. In addition to the laboratory work above described it is designed to give a short course of laboratory work in industrial chemistry, in which the student will apply upon a small scale the principles involved in the processes of some of the more important chemical industries.

Students completing the above courses are afforded ample facilities for advanced work along special lines.

AGRONOMY.

PROFESSOR DUGGAR.
ASSOCIATE PROFESSOR FUNCHESS.
INSTRUCTOR BOYD.

The regular agricultural course extends through four years and is intended to prepare those who complete it to become successful farmers, farm superintendents, and agricultural scientists in the various divisions of agricultural work in the U. S. Department of Agriculture and the numerous agricultural colleges and experimental stations. The studies in the regular agricultural course are so arranged that a student may obtain a thorough education while acquiring the technical training necessary to the most successful management of farming operations and of agricultural investigation or teaching. No foreign language is required for graduation in this course, but those who expect to engage in scientific work of the U. S. Department of Agriculture or of the agricultural colleges and experiment stations, have the opportunity to study Latin, French and German, or any one or two of these.

For the benefit of those who are unable to spend four years at college and who desire to prepare for the management of a farm, a short two-year course in agriculture is provided. In this the student devotes his entire time to those studies having a direct bearing on his future occupation.

The following courses of instruction are offered:

FRESHMAN CLASS.

201. Introduction to agriculture: This is a short course of lectures, dealing with some of the simplest phases of agriculture. *Two hours, half first term.*

SOPHOMORE CLASS.

202. Corn: Lectures, recitations, and field practice on the cultivation, judging and improvement of corn. The student assists in harvesting certain experiments, becomes acquainted with a number of the best varieties, learns to select the best ears and the best plants, and notes the results of experiments in improving or breeding corn. *Two hours, lectures; two hours, laboratory, first term.*

203. Farm accounts: *Lectures and practice, two hours, second term.*

204. The small grains: Lectures, recitations, and field practice on wheat, oats, rye and barley. These plants are treated both as grain crops and as forage plants. *Two hours, lectures; two hours, laboratory, third term.*

JUNIOR CLASS.

205. Leguminous forage plants and soil improvement: Lectures, recitations, and field practice on this most important group of forage plants, including cowpeas, soybeans, alfalfa, the clovers, vetches, etc. These plants are treated both with reference to their use as forage plants and as a means of improving the soil. *Two hours, lectures; two hours, laboratory, third term.*

SENIOR CLASS.

206. Cotton: Lectures, recitations, and field practice in identifying and comparing a large number of varieties growing on the experiment station farm; judging individual cotton plants, and lectures on the cultivation, fertilization, and improvement of cotton. The collection of varieties growing on experiment station farm usually numbers between fifty and one hundred varieties, and all of these are available for students' use. *Two hours, lectures, two hours laboratory, first term.*

207. Cotton classing: This course of laboratory work consists of practice in classing the commercial grades of cotton by comparing great numbers of samples procured from the offices of cotton buyers with a nearly complete set of type samples owned by this department. A part of this practice will be under the supervision of experienced cotton buyers. *Hours by appointment.*

207a. Special crops: A course of lectures dealing with sugar cane, tobacco, rice, broom-corn, and other southern crops not treated in other courses. *Two hours, second term.*

208. Farm management: A course of lectures and practice dealing largely with rotation of crops, cost of producing differ-

ent crops, systems of farming, selection of a farm, and plans for the best use of the farm or soil in which each student is most interested. This course is intended to give the student an opportunity to bring to bear on practical problems the information acquired from preceding courses of instruction in agriculture and related subjects. *Two hours, lectures; two hours, laboratory, third term.*

209. Investigation as a basis for a thesis: After a month spent in special reading under the direction of the professor of agriculture with a view to the selection of a subject for a thesis, the student will perform some agricultural experiment in crop production, soil treatment, or in testing farm machinery. Suitable facilities for such thesis work are provided in the fields and agricultural laboratories. In addition to conducting an original experiment the student will review the literature of agriculture to ascertain the results of similar or related experiments. It is expected that the results of some of these experiments will be worthy of publication. *Entire session.*

211. Soils and soils laboratory: Recitations intended to acquaint the student with the physical properties of soils, with the principal soils of Alabama, and especially those of the region from which each student comes. Instruction in this course will be given with a view to fitting a student to engage in the soil survey work of the U. S. Department of Agriculture, as well as to prepare him for the rational management of the soil of the farm. *Five hours, entire session.*

212. Methods of teaching agriculture: This is a course of lectures and laboratory and field exercises intended to meet the needs of those who expect to teach agriculture or nature study in the common schools and agriculture in the high schools. Special attention is given to the selection of material for illustrating the principles of agriculture, and practice will be given in conducting a number of simple demonstrations. Frequent excursions are made in the fields. *Two hours, third term.*

Post graduate courses in crop production, soils, and farm management are offered. The exact nature of the subject will depend upon the special requirements of the student.

Students taking a four-year course in agriculture receive instruction in the various branches of animal husbandry and horticulture, as well as in the natural sciences bearing on agriculture.

COURSES FOR SPECIAL STUDENTS.

213. Soils and fertilizers: (For special students only)—This

mechanical engineering. The lectures provide a brief course in graphic statics, graphical statics of mechanism, and in the design of structures, including roof trusses for factory buildings, crane frames, girders, and water-tank towers. The stresses in machines and structures are investigated by graphical methods, which are carefully checked in the beginning, by analytical proofs. This course includes the solution by graphical methods of such problems, before which analytical methods are comparatively impotent, as those which involve the friction losses in machines, and of the determination of the efficiency of mechanisms. The graphical method is also applied to dynamics by problems in the balancing of engine crankshafts working under specified conditions. The use of manufacturers' handbooks and drafting-room practice are given special attention. *One hour, entire session.*

606. Machine design: Required in the courses of electrical engineering and mechanical engineering. Instruction is given in the design of fastenings and machine parts, and in the general methods of arranging views. This course includes the design of cams, gear tooth outlines, quick-return motions, and link-work combinations, which supplements course 604, in kinematics. Scale drawings of simple machines are made from dimensioned sketches, which each student makes for himself from an actual machine or model. Tracings and blue prints are made from these drawings. All the instruction is intended to familiarize the students with modern drafting-room methods. *Four hours, entire session.*

SENIOR CLASS.

607. Machine design—lectures: Required in the courses of mechanical engineering and electrical engineering. These lectures are intended to cover the general instructions to the students, such as the selection of materials for different machine parts, the rules for proportion of parts to secure strength, symmetry, and cheapness of manufacture, and the best methods of making, recording and preserving the calculations incidental to the design of a complete machine. Much valuable engineering data of current nature in the form of notes are given as a supplement to the text-book. Illustrated lantern lectures on subjects related to the course are given at intervals during the year. *One hour, entire session.*

608. Machine design—drawing: Required in the course in mechanical engineering. This is a continuation of the junior course in machine design. Original problems involving the design of complete machines to work under specified conditions are assigned and the student develops the idea in the

form of sketches. These are submitted to the instructor for criticism and are afterwards embodied in complete detail and assembly drawings. The calculations of each design are written up neatly and filed with the drawings. Special attention is given to the strength of the parts, to the harmonious and symmetrical appearance of the complete machine, and to the details as regards practical manufacture. *Six hours, entire session.*

609. Machine design—drawing: Required in the course in electrical engineering. The work given and the methods pursued are similar to those described in course 608, just preceding, but the amount of work required is reduced in proportion to the amount of time given to the subject. *Three hours, entire session.*

GRADUATE STUDENTS.

610. The work offered during the post-graduate year is an extension of that of the senior year. More of the theory of the subject is taught, more intricate machines are involved, and problems are given involving the design of a series of machines for manufacturing some specific article. The problems arising in the design of a line of machines of different sizes are also taken up, including the applications of graphical methods and the use of factors of enlargement and reduction. Special attention is given to the effect of current practice on the proportion of machine parts.

A research study into the Patent Office records of some machine or device is offered in this course. This feature is to develop the inventive capacity of the student, and is given special attention.

Suitable text and reference books are used.

611. Methods of teaching drawing and descriptive geometry: A course in the methods of teaching drawing and descriptive geometry is given to those who wish to prepare for teaching these branches. This course includes advanced work in shape of problems, supplemented by frequent conferences with the instructor, a full bibliography of works on the subjects, and an extended course in reading.

Those who desire to avail themselves of an opportunity to practice the teaching of the subjects may be permitted to attend the meetings of the large classes in elementary work for the purpose of observing methods of teaching.

Those who show sufficient preparation may be allowed to

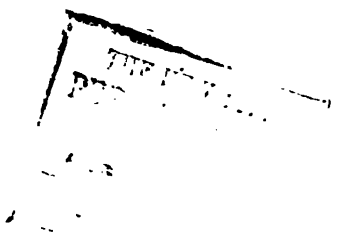
assist in tutoring delinquent students and those who enter conditioned.

Special attention is given to the subject of drawing as taught in high school work.

612. Thesis: A thesis taken in this department may be a study of some machine or its parts; research in records of subjects relating to the work of the department; or, a study of current practice in the design of some specific machine. It is required to be written in parts, one of which is to be presented at the end of each term. The complete thesis is due on May 1st.

TEXT-BOOKS.

Cross' Mechanical Drawing, Jamieson's Isometric Drawing, Phillips and Millar's Essentials of Descriptive Geometry, French's Engineering Drawing, Keown's Mechanism, Spooner's Machine Design, Smith and Marx's Machine Design, Cathcart and Chaffee's Graphics, Halsay's Hand-book Machine Design.



Comer Agricultural Hall

COLLEGE OF AGRICULTURAL SCIENCES

CHEMISTRY.

PROFESSOR ROSS.
PROFESSOR HARE.
ASSOCIATE PROFESSOR BRAGG.
ASSISTANT PROFESSOR POWELL.
INSTRUCTOR MARSH.
ASSISTANT MARTIN.
ASSISTANT PIPKIN.
ASSISTANT BASORE.

Instruction in this department embraces the following courses of lectures, systematic laboratory work being given in connection with each course for the practice of chemical analysis and chemical research:

FRESHMAN CLASS.

101. Course in general chemistry: This consists of a series of lectures including a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties, and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form. *Four hours, entire session.*

REFERENCE BOOKS.

McPherson and Henderson's General Chemistry, Newth, Holleman, Smith, Mellor, Chemical Journals.

SOPHOMORE CLASS.

103 (b). Organic chemistry: This course, though somewhat more condensed, is similar to 103 (a), with the exception that the latter portion of the course is devoted to a special study of fats, carbohydrates and proteins with reference to their functions in the life processes of plants and animals. *Three hours, first and second terms.*

105. Agricultural chemistry: This course consists of lectures on chemistry in its application to agriculture and includes a thorough discussion of the origin, composition, and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of

soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist. *Four hours, third term.*

REFERENCE BOOKS.

Snyder's Soils and Fertilizers, Snyder's Chemistry of Plant and Animal Life, Johnson's How Crops Grow, and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Stoddart's Agricultural Chemistry, Storer's Agriculture in Relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

JUNIOR CLASS.

102. Industrial chemistry: Lectures, including discussion in detail of the processes and chemical principles involved in the most important applications of chemistry, in the arts and manufactures to the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams *Three hours, first and second terms; four hours, third term.*

REFERENCE BOOKS.

Thorp's Industrial Chemistry, Wagner's Chemical Technology, Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Sadtler's Industrial Organic Chemistry, Blount and Bloxom's Chemistry for Engineers and Manufacturers.

103 (a). Course in organic chemistry: Instruction in this subject embraces lectures and recitations upon the leading facts and principles of the chemistry of the carbon compounds, and includes a study of the methods of preparation of the more important compounds, their properties, and their structural and stereo-chemical relations. *Three hours, first and second terms; two hours, third term.*

TEXT AND REFERENCE BOOKS.

Remsen's Organic Chemistry, Richter's Organic Chemistry, Gatterman's Practical Methods of Organic Chemistry.

SENIOR CLASS.

104. Course in Metallurgy: This consists of lectures and

recitations upon the more important metals, such as iron and steel, copper, lead, tin, silver, gold, mercury, zinc, etc. It includes a discussion of the physical and chemical properties of the metals and their alloys, the ores and their treatment, and the processes by which the metals are obtained from the ores, with chemical reactions involved. *Three hours, second and third terms.*

104b. Metallurgy: An advanced course in iron and steel. Lectures and recitations upon the special methods of manufacturing iron and its several alloys, or steels. Required of seniors in mining engineering, chemical engineering, chemistry and metallurgy, and mechanical engineering. *Three hours, third term.*

106. Engineering chemistry: A course given during the senior year, especial attention being devoted to the study of the construction and equipment of the chemical plants devoted to the manufacture of the more important chemical products. Excursions to various chemical and metallurgical plants during the course of the year will aid in familiarizing the student with the practical details of the operation of the leading industries. *Two hours, second and third terms.*

107. Course in theoretical chemistry: The more modern phases of chemical theory are given special attention. *Two hours, first term.*

108. Course in physical chemistry: Lectures and recitations. *Two hours, entire session.*

109. Methods of teaching chemistry in the secondary schools: In this course, students who have had the necessary preliminary work in chemistry will be afforded the opportunity of taking laboratory practice in experimental chemistry for lecture purposes and for the purpose of the practical study of methods of handling classes in experimental laboratory work. Advanced students can also take the course in the history of chemistry which is provided in the senior year of the course of chemistry and metallurgy. *Hours to be arranged.*

111. Course in advanced inorganic chemistry: *Two hours per week, entire session.*

LABORATORIES.

110. Courses of practical work in the laboratory are carried on in connection with all courses of lectures.

The laboratories, which are open from 9 A. M to 5 P. M. during six days in the week, are amply supplied with everything necessary for instruction in chemical manipulation in qualitative and quantitative analysis, and in the methods of prosecuting chemical research. Unusual facilities are offered to stu-

dents who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles and the common re-agents and apparatus used in the qualitative and quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order; the value of those which have been injured or destroyed will be deducted from his contingent fee.

SOPHOMORE CLASS.

(a) All students in the courses in agriculture, chemistry and metallurgy, chemical engineering, and mining engineering are required to take practical laboratory work. Students in the course in pharmacy upon application, may be allowed to take this work.

The work of this course embraces the preparation of a number of non-metallic elements and some of the more important inorganic compounds, the identification of metals by means of the blowpipe, and the qualitative separation and detection of the bases and acids.

JUNIOR CLASS.

110 (b). A course in quantitative analysis, embracing gravimetric and volumetric analysis and including the analysis of limestones, iron ores, etc. *Six hours, entire session.*

SENIOR CLASS.

(c). A course in quantitative analysis, including analysis of fertilizers, soils, coals, ores, iron and steel, sugars and sugar products, feed stuffs, mineral waters, fluxes, slags, cinders, furnace gases, etc. The nature of the work is varied somewhat to suit the individual object of the student. *Six hours, entire session.*

(d). The laboratory course provided for students in the course in mining engineering embraces work in quantitative analysis, including assaying. In the latter portion of the course, especial attention is given to metallurgical analysis and the fire assay of ores of gold, silver, and other important metals. *Eight hours, entire session.*

(e). In the courses in pharmacy and veterinary science, instruction in urine analysis and in toxicology and toxical analysis is given during the last term.

(f). In the junior year, a laboratory course in organic chemistry is provided for students in the course in chemical engineering throughout the entire year, and for students in the

course in chemistry and metallurgy during the third term. *Four hours, entire session.*

The short course includes systematic laboratory work in organic preparations, while the longer course embraces work in organic analysis, as well as in preparations.

112. In addition to the laboratory work above described it is designed to give a short course of laboratory work in industrial chemistry, in which the student will apply upon a small scale the principles involved in the processes of some of the more important chemical industries.

Students completing the above courses are afforded ample facilities for advanced work along special lines.

AGRONOMY.

PROFESSOR DUGGAR.
ASSOCIATE PROFESSOR FUNCHESS.
INSTRUCTOR BOYD.

The regular agricultural course extends through four years and is intended to prepare those who complete it to become successful farmers, farm superintendents, and agricultural scientists in the various divisions of agricultural work in the U. S. Department of Agriculture and the numerous agricultural colleges and experimental stations. The studies in the regular agricultural course are so arranged that a student may obtain a thorough education while acquiring the technical training necessary to the most successful management of farming operations and of agricultural investigation or teaching. No foreign language is required for graduation in this course, but those who expect to engage in scientific work of the U. S. Department of Agriculture or of the agricultural colleges and experiment stations, have the opportunity to study Latin, French and German, or any one or two of these.

For the benefit of those who are unable to spend four years at college and who desire to prepare for the management of a farm, a short two-year course in agriculture is provided. In this the student devotes his entire time to those studies having a direct bearing on his future occupation.

The following courses of instruction are offered:

FRESHMAN CLASS.

201. Introduction to agriculture: This is a short course of lectures, dealing with some of the simplest phases of agriculture. *Two hours, half first term.*

SOPHOMORE CLASS.

202. Corn: Lectures, recitations, and field practice on the cultivation, judging and improvement of corn. The student assists in harvesting certain experiments, becomes acquainted with a number of the best varieties, learns to select the best ears and the best plants, and notes the results of experiments in improving or breeding corn. *Two hours, lectures; two hours, laboratory, first term.*

203. Farm accounts: *Lectures and practice, two hours, second term.*

204. The small grains: Lectures, recitations, and field practice on wheat, oats, rye and barley. These plants are treated both as grain crops and as forage plants. *Two hours, lectures; two hours, laboratory, third term.*

JUNIOR CLASS.

205. Leguminous forage plants and soil improvement: Lectures, recitations, and field practice on this most important group of forage plants, including cowpeas, soybeans, alfalfa, the clovers, vetches, etc. These plants are treated both with reference to their use as forage plants and as a means of improving the soil. *Two hours, lectures; two hours, laboratory, third term.*

SENIOR CLASS.

206. Cotton: Lectures, recitations, and field practice in identifying and comparing a large number of varieties growing on the experiment station farm; judging individual cotton plants, and lectures on the cultivation, fertilization, and improvement of cotton. The collection of varieties growing on experiment station farm usually numbers between fifty and one hundred varieties, and all of these are available for students' use. *Two hours, lectures, two hours laboratory, first term.*

207. Cotton classing: This course of laboratory work consists of practice in classing the commercial grades of cotton by comparing great numbers of samples procured from the offices of cotton buyers with a nearly complete set of type samples owned by this department. A part of this practice will be under the supervision of experienced cotton buyers. *Hours by appointment.*

207a. Special crops: A course of lectures dealing with sugar cane, tobacco, rice, broom-corn, and other southern crops not treated in other courses. *Two hours, second term.*

208. Farm management: A course of lectures and practice dealing largely with rotation of crops, cost of producing differ-

ent crops, systems of farming, selection of a farm, and plans for the best use of the farm or soil in which each student is most interested. This course is intended to give the student an opportunity to bring to bear on practical problems the information acquired from preceding courses of instruction in agriculture and related subjects. *Two hours, lectures; two hours, laboratory, third term.*

209. Investigation as a basis for a thesis: After a month spent in special reading under the direction of the professor of agriculture with a view to the selection of a subject for a thesis, the student will perform some agricultural experiment in crop production, soil treatment, or in testing farm machinery. Suitable facilities for such thesis work are provided in the fields and agricultural laboratories. In addition to conducting an original experiment the student will review the literature of agriculture to ascertain the results of similar or related experiments. It is expected that the results of some of these experiments will be worthy of publication. *Entire session.*

211. Soils and soils laboratory: Recitations intended to acquaint the student with the physical properties of soils, with the principal soils of Alabama, and especially those of the region from which each student comes. Instruction in this course will be given with a view to fitting a student to engage in the soil survey work of the U. S. Department of Agriculture, as well as to prepare him for the rational management of the soil of the farm. *Five hours, entire session.*

212. Methods of teaching agriculture: This is a course of lectures and laboratory and field exercises intended to meet the needs of those who expect to teach agriculture or nature study in the common schools and agriculture in the high schools. Special attention is given to the selection of material for illustrating the principles of agriculture, and practice will be given in conducting a number of simple demonstrations. Frequent excursions are made in the fields. *Two hours, third term.*

Post graduate courses in crop production, soils, and farm management are offered. The exact nature of the subject will depend upon the special requirements of the student.

Students taking a four-year course in agriculture receive instruction in the various branches of animal husbandry and horticulture, as well as in the natural sciences bearing on agriculture.

COURSES FOR SPECIAL STUDENTS.

213. Soils and fertilizers: (For special students only)—This

is a lecture course in which the student is made familiar with the origin, chemical and physical properties, and management of the soil. A discussion of the relation of rotations, fertilizers, and lime to the maintenance of soil fertility is given. *Two hours, first and second terms. Tu., Th.* 8-9.

214. Terracing and drainage: (For special students only)—Field instruction is given in this course with the view of fitting the student to lay off terraces and design drainage systems on the farm. *Two hours, second term. F.* 10-12.

AGRICULTURAL ENGINEERING.

PROFESSOR BLASINGAME.
INSTRUCTOR BOYD.

JUNIOR CLASS.

220. Drainage, terracing, and farm structures: While these topics are the subjects of lectures and recitations, chief stress is laid on giving the student practice in locating terraces, laying out ditches, and planning systems of tile drainage. Such time as is available is given to the study and planning of barns, fences, gates, etc. *Two hours lectures, two hours laboratory, first term.*

SENIOR CLASS.

221. Farm engines: This course consists of lectures and laboratory practice with farm engines; application of power to farm operations, such as feed grinding, silage cutting, pumping, spraying, wood saws, etc.; transmission of power, including belt lacing, rope splicing, etc. Especial attention is given to finding and remedying engine troubles. *Two hours per week, second term.*

222. Farm machinery: It is the aim of this course to acquaint the student with improved farm machinery; adjustment, construction, repair, and operation of preparation machinery, seeding machinery, cultivators, haying machinery, etc. *Two hours per week, second term.*

BOTANY.

PROFESSOR ROBBINS.
ASSISTANT PROFESSOR MASSEY.

The courses offered by the Department of Botany are designed to meet the needs of three different groups of students: Those desiring to secure some general acquaintance with the

elementary facts and principles of a biological science as a necessary part of a cultural education; those desiring a thorough and detailed presentation of certain aspects of the subjects as a prerequisite to entrance upon the study of medicine or of some phase of applied botany such as horticulture or agronomy; those seeking the fullest possible collegiate training in the subject as a preparation for teaching or for advanced work in the subject. For information as to laboratory equipment see page 18.

SOPHOMORE CLASS.

301. General botany: This course is planned to meet the needs of all three classes of students just named. It is designed to furnish a broad general introduction to the fundamental principles of a biological science, supplying the foundation upon which subsequent courses are built while at the same time giving to the non-specialist a good acquaintance with those biological principles which should form a part of his equipment for life. The course is not rigidly morphological, but attempts to supply an introduction to the evolutionary history and the fundamental physiological processes of organisms, employing plants as illustrative material. The first half of the year is devoted to the general morphology of selected representatives of the Cryptogams. The evolutionary relationships of the great plant groups will be outlined in the lectures and illustrated by the study of types in the laboratory. About forty carefully selected type forms will be studied in detail, while a considerably larger number will be examined in a comparative way. Especial stress will be laid upon the life-histories and biological relationships of those forms which are of greatest economic importance, hence a considerable proportion of the time will be given to the fungi. The second half of the year will be devoted to the general morphology of the flowering plants. The topics upon which especial stress is laid are: vascular anatomy, the histological elements, and recognition by chemical and microchemical tests of the commoner stored food substances. Secondary attention will be devoted to elementary physiological principles and facts and to the correlation of these with the facts of anatomical structure, but the chief end of the course is to convey a knowledge of the principles of morphology. Required of all sophomores in the college of agriculture. A laboratory fee of $1.50 is charged in this course to cover the cost of materials and laboratory sheets. *Two hours lectures and four hours laboratory, entire session.*

302. Pharmaceutical botany: This course is designed to

supply such knowledge of the facts and principles of botany as are prerequisite to the special work of students in pharmacy. The first portion of the course is devoted to a systematic presentation in lectures and laboratory of the fundamental principles of anatomy and physiology of the higher plants, followed by detailed microscopical and microchemical examination of the more important histological elements and food substances of plants. Considerable attention is devoted to the methods, microscopical and chemical, employed in the examination of crude drugs and the detection of adulterants. The third term is devoted to the study of the principles of classification; a description of the work done in this part of the course will be found under course 307. Required of sophomores in the course in pharmacy. A laboratory fee of $1.50 is charged in this course to cover the cost of materials and laboratory sheets. *Two hours lectures and four hours laboratory, entire session.*

JUNIOR CLASS.

303. Agricultural bacteriology: This course is designed to supply to students contemplating specialization in animal husbandry or in some phase of applied botany, as horticulture, forestry, or agronomy, such an introduction to the principles of bacteriology as may furnish a basis for study of the special problems to be encountered in these lines of work. After a brief introductory discussion of the general morphology and physiology of the bacteria, the biological relations of the specialized groups will be taken up. The bacteriology of fermentation and putrefaction, the nitrogen-fixing and sulfur bacteria, the application of bacterially produced processes in the industries, and the more important problems of soil bacteriology will be dealt with in such detail as time permits. The point of view throughout the course is distinctly economic. The forms pathogenic for man and for animals will not be considered. A prerequisite for this course is Agr. 301. A laboratory fee of $2.00 is charged in this course to cover the cost of materials and laboratory sheets. *Two hours lectures, four hours laboratory, first term.*

304. Plant Physiology: This course deals with the fundamental processes involved in plant response and plant behavior as related to crop production. The topics covered in the lectures and laboratory are the following: The cell as the physiological unit; the principles of absorption; transpiration and water movement in plants; water requirements of economic plants; mineral nutrition; the carbon relations of plants; the relation to nitrogen; the products of metabolism; digestion and

translocation; respiration, aeration, and fermentation; growth; reproduction; the relation of plants to temperature, light, and toxic agents; variation and heredity. A prerequisite for this course is Agr. 301. A laboratory fee of $3.00 is charged in this course to cover the cost of materials and laboratory sheets. *Two hours lecture, four hours laboratory, second and third terms.*

SENIOR CLASS.

305. Plant pathology: The lectures of the first half of the course will deal with the morphology, distinguishing characters, and methods of identification of those orders of fungi which are concerned in the production of economically important plant diseases. The relations of parasite to host will be studied through the employment of a few examples of each of the categories of plant disease—parasitism immediately destructive to tissues and life of host; symbiosis terminated by destruction of the host at the reproductive period; invasions which do not involve destruction of living tissues—to the end that the student may acquire some degree of ability to make diagnoses of plant diseases. Habit studies in the field will be followed, so far as possible, by cultural studies in the laboratory, employing representatives of all the more important pathogenic orders. Each student will be required to collect and classify a considerable number of pathogenic fungi. The second half will deal with those diseases of farm, garden, and truck crops which are of most interest to agriculture and horticulture in the state. The lectures will consist for the most part of a review and discussion of the more important literature, with especial reference to prevention and control. The laboratory work of this portion of the course is designed to give the student an acquaintance with pathological technique and with field methods through the combination of field studies with cultural and morphological studies of assigned organisms in the laboratory. These problems may form the basis for thesis work or for investigation which may be continued through the year. Prerequisites for this course are Agr. 303 and 304. A laboratory fee of $2.00 is charged in this course to cover the cost of materials and laboratory sheets. *Two hours lectures, four hours laboratory, first and second terms.*

306. Plant histology: This course covers a rather broader field than the title would imply, as its purpose is to furnish to students planning to become teachers or advanced students of botany, such familiarity with the collection, preservation, and preparation of the materials ordinarily used in introduc-

tory botany as will enable the student to collect and prepare materials for study or to do intelligent and effective teaching. The technique of the more widely used methods of preserving, sectioning, and staining will be taught, and the student will be directed in the collection and preparation of a representative teaching collection, including permanent gross and microscopic preparations of representative forms ranging from the lower Algae through the flowering plants. Such materials become the property of the student, who will pay actual costs of reagents, glassware, and breakage. The lectures will give consideration not only to general histological technique, but also to the choice and methods of presentation of illustrative material in elementary courses in the subject. A prerequisite for this course is Agr. 301. *Two hours lectures, four hours laboratory, second term.*

307. Taxonomic botany: This course is intended to meet the needs of students desiring to acquire some acquaintance with the flora of the region. The work demands some such knowledge of the general morphology of the flowering plants as is supplied by course 301 or its equivalent. The student will be instructed in the use of keys and manuals, and the lectures will deal with the classificatory characters of the more important plant families. The laboratory work will be to a considerable extent adapted to the especial needs of the student, so that those who desire to pay particular attention to special groups, as an adjunct to work in horticulture or agronomy, will find an opportunity to do so. Required of sophomores in pharmacy and juniors in veterinary medicine. *Two hours lectures, four hours laboratory or field, third term.*

GRADUATE COURSE.

The department offers to properly prepared students opportunity for advanced work in botany, particularly in plant physiology and pathology. Students planning to do graduate work should consult with the head of the department as early in the course as possible, preferably at the beginning of the junior year, in order that proper choice of the electives may be made. The general requirements for graduate work in the department are: the satisfactory completion of the undergraduate courses in botany, together with the required courses in organic and agricultural chemistry, courses in plant breeding and forestry (Horticulture 609 and 608), and a fair reading knowledge of German and French. By special arrangements with the department head, a student may begin graduate work without having fully met these requirements, with the understanding that they are to be fully met prior to serious entrance

upon his work in the department and in addition to the work in botany required for the Master's degree.

TEXT-BOOKS.

301. Coulter, Barnes and Cowles' Textbook of Botany, Volume I.

302. Stevens' Plant Anatomy, Third Edition.

303. Marshall's Microbiology.

304. Hass and Hill, Introduction to the Chemistry of Plant Products; Duggar's Plant Physiology; Jost's Plant Physiology.

305. Duggar's Fungous Diseases of Plants.

306. Chamberlain's Methods in Plant Histology.

307. Gray's School and Field Botany, revised edition.

DEPARTMENT OF PHARMACY.

PROFESSOR BLAKE.
ASSISTANT MOTLEY.
ASSISTANT GENTRY.

The pharmacy department of this institution is a member in good standing of the American Conference of Pharmaceutical Faculties.

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than 250 drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, orgin, habitat, constituents, medicinal action and dose.

JUNIOR CLASS.

401. (a). Pharmacy: Metrology; specific gravity; heat and applications of heat; fundamental operations of pharmacy; apparatus used in pharmaceutical processes; pharmaceutical arithmetic. *Three hours, first term.*

(b). Pharmaceutical laboratory: Preparation of official and non-official galenicals, including the following classes of preparations: waters, spirits, liquors, mucilages, pills, elixirs, oleates, tinctures, etc. *Two hours, lectures, six hours laboratory, second and third terms.*

402. Pharmacognosy: The study of crude drugs; lectures, recitations, and practical work in identification. *Four hours, entire session.*

406. Pharmaceutical chemistry: A study of the official

salts, official title, chemical formula, reactions, description, physical identification, dosage, etc. *Three hours, second and third terms.*

SENIOR CLASS.

403 (a.) Pharmaceutical technique and manufacturing pharmacy: official and non-official galenicals and chemical preparations; a thorough study of the U. S. P. and N. F. class work. *Three hours, entire session.*

(b). Manufacture of more difficult galenicals and U. S. P. chemical preparations. *Twelve hours, first term.*

(c.) Pharmaceutical testing and drug assay. *Nine hours, second term.*

(d). The compounding of fifty or more prescriptions and individual instruction. *Six hours, third term.*

(e). Food and drug analysis. *Six hours, third term.*

404. Pharmacognosy: The study of crude drugs. This course is a continuation of course 402. *Three hours, first term.*

405. Prescription reading and incompatibilities: Lectures and recitations. *Three hours, second and third terms.*

407. United States Pharmacopoeia: This course is primarily a review intended to prepare the student to stand the State examinations. It covers all crude drugs, organic and inorganic chemicals and preparations found in the U. S. P. *Three hours, second and third terms.*

THREE-YEAR COURSE.

408. The work of the third year for the pharmaceutical chemist degree is elected from the following courses:

(a). An advanced course in the manufacture of galenicals and organic and inorganic chemicals used in medicine.

(b). A course in the testing of drugs and medicinal chemicals for impurities by pharmacopoeial methods.

(c). A course in pharmaceutical assaying, including the assay of alkaloidal drugs, glucosidal drugs, resinous drugs, the valuation of fixed and volatile oils, pepsin, diatase, etc.

(d). A course in water analysis.

(e). A course in milk and butter analysis.

(f). A course in physiological chemistry.

(g) A course in organic preparations.

(h). An advanced course in toxicological analysis.

(i). The presentation of a satisfactory thesis.

(j). Food and drug analysis.

Any student who completes the work of the three-year course in such a manner as to prove himself a competent analyst will be granted the degree of Pharmaceutical Chemist.

TEXT AND REFERENCE BOOKS.

Arny's Principles of Pharmacy, Steven's Pharmacy and Dispensing, Kraemer's Botany and Pharmacognosy, Caspari's Treatise on Pharmacy, Sayre's Organic Materia Medica and Pharmacognosy, Culbreth's Materia Medica and Pharmacognosy, Scoville's The Art of Compounding, Beal's Prescription Practice, Dorland's Pocket Medical Dictionary, Ruddiman's Incompatabilities in Prescriptions, O'Connor's Commercial Pharmacy, Lyon's Pharmaceutical Assaying, United States Pharmacopoeia, United States Dispensatory, National Dispensatory, National Standard Dispensatory, King's American Dispensatory, Prescott's Organic Analysis, Allen's Commercial Organic Analysis, Pharmaceutical Journals, Reports of American Pharmaceutical Association.

HORTICULTURE.

PROFESSOR WALKER.
ASSOCIATE PROFESSOR PRICE.

Instruction in this subject begins with the third term of the sophomore year and continues through the junior and senior years for students taking the regular four-year course in agriculture. A special two-year course in horticulture and related subjects is open to students who are unable to take the regular four-year course.

Practical exercises in the laboratory and field supplement the lectures and recitations. Constant attention is given to the fundamental principles and science upon which the best in practical methods is based.

SOPHOMORE CLASS.

601. Principles of plant culture: This includes the study of germination, propagation, transplanting, conditions of plant growth, etc.; also seed testing, preparation and sowing of seed beds. *Recitations, two hours, third term. W.* 11-12; *Th.* 10-11.

Plant propagation: (to accompany 601): Laboratory practice in seed testing, propagation of plants, pruning, etc. Students are required to submit illustrated notes. *Laboratory and field, four hours, third term. M., F.* 2-4.

Text-books: Principles of Plant Culture (Goff), and The Nursery Book (Bailey).

JUNIOR CLASS.

602. Landscape gardening: An introduction to the general subject of landscape design. The trees, shrubs, vines, peren-

nials, and annuals adapted to southern gardens are studied. Individual problems are presented for the embellishment of the home and school grounds, and plans for public squares and parks are studied. *Lectures, two hours, first term. Tu., Th.* 10-11.

Text-books: Landscape Gardening (Maynard). References Landscape Gardening (Waugh); Modern Civic Art (Robinson); The Landscape Beautiful (Waugh); Weidenmann and other authors.

603. Vegetable gardening: Studies of the principal truck and garden crops with notes as to their origin, classification and economic importance; methods of growing, fertilizing, harvesting, marketing, and storing these crops. *Recitations and lectures, two hours, laboratory, two hours, second and third terms; second term, Tu., F.* 11-12, *Th.* 2-4; *third term, Tu., F.* 11-12, *W.* 2-4.

Text and reference books: Garden Farming (Corbett), Vegetable Gardening (Bailey), Up-to-date Truck growing in the South (Davis), Vegetable Gardening (Vilmorin), Southern Gardener's Manual (Newman), Vegetable Gardening (Watts).

604. Orchard technique: A laboratory course in spraying, pruning, fertilization, cultivation, and orchard management, supplementing course 603. *Two hours, second term. Tu.* 2-4.

References: The Pruning Book, Bailey Farm and Garden Rule Book (Bailey).

SENIOR CLASS.

605. Fruit growing: A study of the more important fruits and nuts of the United States with special reference to their cultivation in home plantings and commercial orchards, harvesting, grading, packing, marketing, leading varieties for the several sections. *Recitations and lectures, three hours, entire session, laboratory two hours, first and third terms. M., W., F.* 9-10; *laboratory first term, F.* 2-4; *third term, Tu.* 2-4.

Text and reference books: Principles of Fruit Growing (Bailey) 20th revised edition. Fruit Harvesting Storing and Marketing (Waugh), Citrus Fruits (Coit), The Pecan (Hume), Citrus Fruits and Their Culture (Hume), Systematic Pomology (Budd and Hansen) and (Waugh), The American Fruit Culturist (Thomas).

606. Canning: Studies in the canning of the different fruits and vegetables. *Lecture one hour, laboratory two hours, first term, Tu.* 8-9 *and* 2-4.

607. Floriculture: This course briefly covers the subject of greenhouse construction and management with special reference to growing of the leading vegetables and decorative plants

with discussions on the forcing and marketing of vegetables and cut flowers. *Lecture one hour, laboratory two hours, second term. Tu.* 8-9 *and* 2-4.

608. Forestry: An elementary course, embracing a study of the forest conditions in Alabama, care of woodlots, preservation of wood, and the uses of the different southern woods. *Recitations and lectures, three hours; laboratory and field exercises two hours, second term. Tu., Th.* 10-11; *W.* 12-1; *laboratory M.* 2-4.

Text-books: Elements of Forestry (Moon and Brown), First Book of Forestry (Roth), Practical Arboriculture (Brown), Primer of Forestry (U. S. D. A.), Principles of Handling Woodlands (Graves), Economics of Forestry (Fernow), Principles of American Forestry (Green), Shade Trees in Towns and Cities (Solotaroff).

609. Plant breeding: A study of the improvement of plants, theories and laws of plant breeding, the origin of the choice varieties of garden and farm crops. *Lectures and recitations two hours, third term. Tu. and Th.* 8-9.

Text and reference books: Principles of plant Breeding (Gilbert and Bailey), Plant Breeding (Davenport), The Mutation Theory), Species and Varieties (DeVries).

610. Thesis: Students who expect to make their major work in horticulture are required to select a thesis subject not later than October 1st.

ENTOMOLOGY.

PROFESSOR HINDS.
ASSISTANT PROFESSOR THOMAS.

701. Zoology: A general course in zoology is required of sophomore students in agriculture, and of special students in agriculture during their second year. The course is given in the first and second terms and includes a brief discussion of the relation of animals to plants and minerals, the nature of cells, the functions involved in life processes and of the classification and distribution of animals. The different animal groups are studied, beginning with the single celled animals, and leading gradually to the most complex forms. The characteristics distinctive of each group are shown and an illustrative study is made of one or more typical representatives of the principal subdivisions in these groups.

Hegner's "College Zoology" is the textbook used. This is supplemented by lecture notes, and the work illustrated by microscopic mounts of protozoa, both fresh and stained, mi-

croscopic mounts showing cell structures of various tissues, alcoholic specimens, dried specimens, charts and models. *Lectures, three hours; laboratory two hours, first and second terms.*

Entomology: In accordance with the catalogue requirements the work in Entomology is taken by all senior students electing an agricultural group of courses, and by the special two-year agricultural students during their second year. In addition to this senior work the subject is open to post-graduate students, who have completed the senior course satisfactorily, as an elective course leading to the degree of Master of Science. The senior work is given during the fall and spring terms only, while the postgraduate work continues during the college year. In general the instruction is given by lecture courses supplemented by collateral reading as assigned and with appropriate laboratory and field exercises.

The senior courses are designed to familiarize the students who anticipate engaging in agricultural work with the most important general facts of entomology as an educational science and with its importance as a subject having wide economical application. So far as possible in the brief time available, they are made familiar with some of the most common insect pests, and with general methods of insect control. Particular emphasis is given to the importance of insect species in their effects upon health of domestic animals and of man especially. A foundation is laid during this year for post-graduate study which may fit men to fill some of the many attractive openings in this field which are quite rapidly multiplying in the South.

Excellent accommodations for the department are now provided on the first floor of Comer Hall. The combined lecture and laboratory room provides accommodations for sixty or more men. In connection with the range of greenhouses there is also a large workroom for experimental and demonstrational work with insecticides and an insectary, 16x40 feet, within which the study of insect problems may be conducted at any time under controllable conditions.

A text-book is required to supplement the lectures in this subject, and reference publications are at all times available to the student. The lectures are also supplemented by appropriate laboratory work, field exercises, the insect collection, photographs, etc., belonging to the department.

702. Structure and development of insects: The general relation of insects to other animals, showing their origin, distinguishing characteristics and the principal structures upon

which they are classified, are here considered. A general study is made of the structure and physiology of insects relating to fundamental principles in their life, habits, and reproduction. The most important points in the collection, mounting and preservation of insect specimens are also studied.

703. Ecology of insects: Under this heading are considered some of the most important and interesting of entomological subjects, among which are the general relation of insects to the health and welfare of mankind through the transmission of preventable diseases and the production of articles having a large commercial value. Protective devices of insects and their control through exceedingly complicated but important natural factors are among the subjects considered.

704. Important injurious and beneficial insects: As full study as the limited time permits is made of the pests of greater economic importance in the household, the orchard, garden, and greenhouse, the enemies of field crops, stored pr ducts, etc. Under beneficial insects a series of lectures is given on bees and beekeeping. Excellent opportunity for demonstration of practical methods in modern beekeeping is afforded by the college apiary.

705. Methods in insect control: The principles of insecticide preparation and application are explained and illustrated. This work is supplemented by an exhibit of the principal insecticide materials. Practice in the preparation of the most commonly used materials is given to emphasize proper and desirable methods. The best types of spraying apparatus are shown and tested, and the student is familiarized with many of the special points in practical work. The importance of the improved methods of agricultural practice is shown and the logical basis of their effectiveness is explained. *Lectures three hours; laboratory two hours, first and third terms.*

ANIMAL HUSBANDRY.

PROFESSOR TEMPLETON.
ASSOCIATE PROFESSOR FERGUSON.
ASSISTANT GIBSON.

Instruction in this department is given in the class room, in the laboratories, and upon the animal husbandry farm with the live stock. While lectures are given on judging animals, the instruction does not stop with the lectures; the students are taken to the barn and feed lots where the animals are placed before them and each student is required to make a

written report concerning the animals. Class-room work in dairy instruction is supplemented, strengthened, and made practical by requiring each student to work in the dairy laboratory where butter is made, where the Babcock test is used, where the lactic acid in cream is determined, etc. In the senior year, trips are made to cities, state and county fairs, and farms to study live stock judging and management. The live-stock provided by the college for the students' use in studying breeds and judging consists of pure-bred herds of Jersey and Hereford cattle; Duroc-Jersey, Berkshire, and Poland-China swine. Light horses and mules are available for class work.

The department now has the complete herd books of practically all the leading breeds of live stock in America. By the use of these the student is enabled to inform himself in regard to all pedigrees and to study the different scales of points which the breeders have adopted to represent the highest types of the various breeds. All class room instruction is given by means of text-books and lectures. Many of the lectures are illustrated by the use of a baloptican.

The courses in this department may be grouped under five main heads:

(1) Judging of live stock, (2) breeding of live stock, (3) feeding of live stock, (4) management of live stock, (5) dairying.

The student is given an opportunity to specialize in animal husbandry throughout the junior and senior years. The courses are as follows:

FRESHMAN CLASS.

801. Breeds of live stock: The object is to study the origin, history of development, the characteristics of each one of the leading breeds of live stock, and to discuss special adaptability of each breed to Southern conditions. The lecture work is supplemented, as far as possible, by representative animals of the breed under discussion. *Lectures, two hours, latter half of first term, M., W.* 11-12.

SOPHOMORE CLASS.

802. Judging beef cattle: The object of this course is to make the student familiar with the various classes and grades of cattle recognized by the leading stock markets and to familiarize him with the leading beef breeds. Instruction is given by lectures, the use of the score card, and by comparative judging. *Laboratory, two hours, first term, M.* 2-4.

803. Judging dairy cattle: The student is familiarized with the dairy types and breeds, and is given judging instruction by the employment of the same methods as used in beef cattle

judging (802). *Laboratory, four hours, second term, M.* 2-4, *W.* 4-6.

JUNIOR CLASS.

804. Dairying: The study of the secretion, character, composition, and production of milk, is made; proper methods of handling milk and cream for consumption, pasteurizing, sterilizing. The students are given thorough work in using the Babcock test and the lactometer, and the lactic acid test, together with the ordinary tests for the purity of milk and its adulterants. They are also drilled on all the phases of butter-making and standardizing milk and cream. Familiarity with the construction, care, and operation of the leading makes of cream separators, and other dairy equipment, is required. *Lectures, two hours; laboratory, two hours, first term, Tu., Th.* 9-10; *W., Th.* 2-4.

805. Swine judging: Considerable time is given to the study of the market classes of grades and the leading breeds of lard and bacon types of hogs adapted to southern conditions. The lecture work is followed by the students using the score card and doing comparative judging. *Laboratory, four hours, second term, W.* 2-4, *Th.* 9-11.

806. Sheep judging: The student is instructed in the methods of judging sheep, considering the market classes and grades, and the characteristics of the principal breeds. *Laboratory, two hours, third term, Th.* 2-4.

806. (a). Advanced stock judging: This course is for junior agricultural students who are especially interested in live-stock judging, and is a prerequisite to making the intercollegiate stock judging team. No college credit is given. *Hours to be arranged, latter half second term and the third term and first half following fall term.*

SENIOR CLASS.

807. Principles of animal breeding: The lectures of this course will embrace the principles and practices involved in the improvement of the domestic animals. The subjects of reproduction, variation, selection, heredity, line breeding, in-breeding, cross-breeding, grading-up, etc., will be discussed in their relations to practical breeding problems. *Lectures, two hours, first term. M., W.* 8-9 .

808. Advanced feeding: This course consists of lectures, supplemented by reference reading, upon the most profitable methods of producing, finishing, and marketing, pork, beef, and mutton. The various concentrates and roughages are discussed as to their importance and efficiency as feeds for

horses, mules, and dairy cattle. *Lectures, three hours, entire session, M., W., F.* 10-11.

809. Meats: This consists of a study of the structure and composition of meats, quantity, cost and food value of the various cuts of beef, mutton, and pork; exercise is also given in judging the carcasses of the different classes of animals. A study is made of how the home-dressing and home-curing of pork is carried on. Lectures are given upon the effect of feeding and breeding of the different animals as affecting the value of the carcass and the quality of the meat. *Laboratory, two hours, second term, F.* 2-4.

810. Poultry: In this course an effort is made to acquaint the student with the different types of poultry with relation to their use and value on the farm. Instruction is given also in feeding, managing, housing, and judging poultry. *Lectures, two hours, third term, M., W.* 8-9.

811. Judging horses and mules: Lectures and laboratory work are given in the judging of the various classes of horses and mules which are adapted to Alabama conditions. *Laboratory, two hours, second term, F.* 2-4.

812. Live stock management: The raising of horses, cattle, sheep, and swine as a business, is discussed in full detail, featuring the care and management in production and marketing. A study is made of the methods used by the most successful stock farmers. Practical work is given in preparing stock for shows and sales. This course will be limited to and required of students majoring in animal husbandry. *Lectures, one hour; laboratory, two hours, entire session, Tu.* 11-12; 2-4.

813. Herd book study: This includes a study of the various herd books with the view of becoming familiar with the pedigrees of the leading strains and families of the different breeds of livestock. Emphasis is made on the methods and rules of registration for each of the breeds of livestock. The rules and regulations governing the importations of livestock into the United States and into Alabama, together with the rules and regulations governing the moving of livestock within the United States and Alabama, are studied. *Lectures, two hours, second term, M., W.* 8-9.

814. Dairying: This course is outlined to meet the requirements of the senior veterinary students and is similar to course 804. *Lectures, one hour; laboratory, two hours, second term, F.* 11-1.

SPECIAL TWO-YEAR COURSE IN AGRICULTURE.

FIRST YEAR.

815. Dairying: A separate course in this subject giving special attention and instruction for the benefit of the two-year students in agriculture, is maintained. The student is familiarized with the butter fat tests, the use of the lactometer, determination of the lactic acid in milk, churning, cream separation, etc. Practice is also given in determining the various common adulterants of milk. *Lectures, two hours; laboratory, four hours, first term, W., F.* 8-9; *Tu., Th.* 2-4.

816. Livestock feeding: This course is offered for the benefit of the first-year veterinary students and the first-year special agricultural students. The food requirements of the animals' bodies are briefly considered. All through this course the practical, rather than the scientific side of feeding is emphasized. Special reference is made to feeding horses and dairy cattle. Veterinary students are allowed to discontinue this subject at the middle of the second term. *Lectures, two hours, entire session. First term, Tu.* 8-9; *Th.* 10-11; *second and third terms, M., Th.* 8-9.

817. Live stock management: This course, also, is for the first-year veterinary students and the first-year special agricultural students. It consists of a series of lectures on the care, housing, and management of horses, cattle, swine, and sheep. *Lectures and laboratory, three hours, latter half of second, and the third term, Tu.* 10-11; *W.* 2-4.

818. Dairy cattle judging: The second term is devoted to judging dairy cattle, in the place of the course in dairying. A detailed study of the several different breeds of dairy cattle is made, and their chief distinctive characteristics pointed out. Exercises in practical judging are given by the use of the score card and by comparative judging at the barns. *Laboratory, four hours, second term, Tu., Th.* 2-4.

819. Judging beef cattle: In this course the student is familiarized with the leading breeds of beef cattle and a study of the conformation of each type is made by practical judging. *Laboratory, two hours, third term, Tu.* 2-4.

SECOND YEAR.

820. Judging horses and mules: A special course of judging is maintained for the second year special students in agriculture. The various types of horses and mules and the market classes are studied. Representatives of the different classes are brought before the students who are, by detailed study,

given an opportunity to become thoroughly familiar with each of them. *Laboratory, four hours, first term, M., W.* 10-12.

821. Poultry: This course in poultry consists of the study of the types and breeds; the housing, feeding, and caring for all classes and ages. From time to time hours are spent in judging. *Lectures, two hours, first term, M., F.* 12-1.

822. Swine judging: This course is a continuation of the course of judging begun in the second year by the study of horses and mules. The leading breeds of swine are kept at the station barns, and the student has ample opportunity to become thoroughly familiar with each. The difference in function and conformation between the lard and bacon types, and the scrubs or natives, is pointed out. A study is made in practical judging by the use of the score card and by comparative judging. *Laboratory, four hours, second term, M., W.* 2-4.

823. Meats: This course includes a study of the effects of various feeds on the meat and lard of hogs, and other animals; finishing stock for slaughter; slaughtering; dressing and curing of the meat. In the laboratory work the student is required to put into practice the methods taught. *Lecture, two hours; laboratory, two hours, second term, Tu.* 9-10; *F.* 12-1; 2-4.

824. Principles of breeding: A course of study of the principles of breeding live stock, giving special attention to the problems of the practical breeder. Much attention is given to fecundity, in-breeding, cross-breeding, grading up, and inheritance. Variation; its causes and benefits are studied. *Lectures, two hours, third term, Tu.* 8-9; *F.* 12-1.

825. Sheep judging: A course is given to make the student thoroughly familiar with the leading breeds of sheep, their conformation and uses. *Laboratory, two hours, third term, F.* 10-12.

SCHOOL AGRICULTURE.

JUNIOR AND HOME ECONOMICS EXTENSION DEPARTMENT.

L. N. DUNCAN.
MADGE J. REESE.
J. C. FORD.
I. B. KERLIN.
* MARY PAXTON.

This department was created July 1, 1914, and is a part of the agricultural extension work conducted in Alabama by co-operation between the College and the United States Department of Agriculture.

The special lines of work in this department are as follows:

Organization of boys' corn clubs,
Organization of boys' pig clubs,
Organization of girls' canning clubs,
Home demonstration work for farm women,
Movable schools of agriculture.

* In co-operation with the Alabama Girls' Technical Institute, Montevallo, Alabama.

COLLEGE OF VETERINARY MEDICINE AND SURGERY

By direction of the United States Civil Service Commission and Department of Agriculture, this college has been added to the list of accredited veterinary colleges, and placed in class A.

VETERINARY MEDICINE AND SURGERY.

PROFESSOR CARY.
ASSISTANT PROFESSOR MCADORY.
INSTRUCTOR WEBB.
INSTRUCTOR FERGUSON.
INSTRUCTOR PRITCHETT.
LECTURER BAHNSEN.
LECTURER WHITE.

PHYSIOLOGY AND VETERINARY SCIENCE.

101. Physiology: The students in the special agricultural course, in all of the pharmacy courses, in the course in chemistry and metallurgy, and in the three-year course in veterinary medicine and surgery, all study elementary physiology. The aim of this course is to teach anatomy, histology, hygiene, and sanitation. The instruction is given by lectures, demonstrations, and text-book. Text-book, Martin's Human Body. (Advanced). *Two hours, entire session.*

102. Veterinary science (elective): For students in agriculture. Lectures and chemical work in the junior year. In the senior year, the student may elect, with the consent of the professor in charge, six hours in the regular three-year veterinary course. The aim of the instruction given to the agricultural students is to teach such lessons as will enable them to prevent many diseases on the farm by correct hygiene and sanitation. At the same time they will be instructed in the ways and means of treating and handling the common diseases of farm animals. This work will prepare them for the "first aid" treatments and emergencies as well as for the course in veterinary medicine and surgery. *Five hours, junior year; six hours, senior year.*

VETERINARY MEDICINE AND SURGERY.

The three-year course in veterinary medicine and surgery leads to the degree of Doctor of Veterinary Medicine. It is the outgrowth of fifteen years' work of the department of

Veterinary Laboratory

physiology and veterinary science. Moreover, it has been established to meet the demand of the young men of the South who desire to become educated veterinarians, and for students who desire to prepare for the study of human medicine.

EQUIPMENT.

The main veterinary building has an independent gas plant and a connected sewer system. It is supplied with electric lights and water. The building contains an office, two lecture rooms, a physiological laboratory, and a museum on the first floor; on the second floor, are located two research laboratory rooms, a library and reading room, a large lecture room containing an incubator room, and all the necessary apparatus for pathological, histological, and bacteriological work.

A separate building is used as a house for small animals (rabbits, guinea pigs, pigeons, etc.) that are employed for experimental and demonstration work in bacteriology, histology, and physiology.

The anatomy division has a separate one-story brick building with good ventilation and extensive sky light. It is supplied with gas, water, and electric lights. The anatomy museum contains the skeletons of man, the horse, the ox, the sheep, and the pig, and models of limbs and special organs of man and the horse. It is also supplied with different lots of bones of the horse with dissected and dried limbs showing the relation and attachment of muscles. An hexagonal operating pavilion thirty-six feet in diameter has just been completed. It is supplied with water and electric lights and lockers for students.

The veterinary hospital contains five box stalls, four open single stalls, an office, and feed room, on the first floor; a large room for storing hay, fodder, and feed, is found on the upper floor. The veterinary department has for its exclusive use about six acres of land divided into lots, pens, and paddocks. In one of the lots, are located two large sheds having a capacity for accommodating one hundred and twenty-five cattle or large animals. These sheds are used for tick fever inoculation purposes and for isolation of animals affected with infectious diseases.

HOG CHOLERA SERUM PLANT.

The hog cholera serum plant occupies about twenty-five acres of land southwest of the College grounds. Upon this are located a large two story brick and cement serum building (70 x 30), a brick and cement virus building (30 x 36), and a large hog barn (60 x 100) with cement floor. The rooms in

the virus and serum buildings are sufficiently large to admit students in the veterinary medical and agricultural courses for instruction in inoculating hogs and in the various processes in making virus and serum. Some of the veterinary medical students work every day in the serum plant and thus become conversant with sterilizing, bleeding, hypering, inoculating and handling the virus, the serum and the hogs.

COURSES OF STUDY.

The three-year veterinary course students take five terms of work in the department of animal husbandry and dairying, one-half years' work in pharmacy; four terms of work in the chemical department, one term of work in botany and one year's work in English. The facilities and equipment of these departments are excellent.

The veterinary course is especially strong in practical laboratory work.

1. In anatomy the work of dissection is continued through the first and second years and the first term of the third year. It is a well established fact that useful surgical or real anatomy can not be acquired without careful and thorough work in the dissecting room. Special stress is given to comparative anatomy of the horse, ox, sheep, pig, and dog.

2. Clinical laboratory work is also required throughout the course. The clinical work comes six days in the week and the cases presented embrace mules, horses, cattle, sheep, dogs, poultry, and hogs. The variety is such as to illustrate a large number of diseases, surgical operations, and therapeutic applications.

3. The physiological laboratory is supplied with apparatus for tests and experiments in physiology.

4. The laboratory for pathology, histology, and bacteriology is extensive, and is fully fitted with the latest apparatus. This laboratory has been the outgrowth of twenty years of cumulative additions. The aim is to teach students to work in the laboratory rather than to memorize the printed page of the text-book.

5. In chemistry and toxicology the students work in one of the best of chemical laboratories.

6. In pharmacy, the students work in practical pharmacy for five hours a week for a half-year. In this they learn to recognize compounds, and dispense drugs.

7. The animal husbandry department affords ample facilities for practice in feeding and judging cattle, sheep, hogs, and mules.

8. The dairy department gives practical laboratory work in

dairy operations and in handling and feeding dairy cattle.

9. The botanical department is well equipped and gives excellent opportunity for laboratory work.

10. The subjects in the course of study are such as are required in the leading veterinary colleges of America. The course meets the requirements of the American Veterinary Medical Association and the Bureau of Animal Industry and United States Civil Service Commission. It is the aim to have the teaching staff meet the requirements of the best standards. The length of the course is three years of nine months each.

FIRST YEAR.

103. Human physiology: Elementary human physiology. The instruction is given by lectures, demonstrations, and textbooks. *Two hours, entire session.*

104. Histology: Deals with the minute anatomy of the various tissues. It includes methods of fixing, imbedding, sectioning, mounting, staining, and a microscopical study of the tissues. Histology is studied by lectures and by laboratory work. *Five hours, first and second terms.*

105. Embryology: This is a study of the development of the embryo and is designed to prepare the students for the study and practice of obstetrics. *Five hours, third term.*

SECOND YEAR.

106. Veterinary physiology, recitations: Treats of the actions or functions of the various vital organs of the animal body. Attention is also given to the laws of health and the conditions most favorable to the healthy action of the animal body. *Two hours, first and second terms.*

107. Physiology laboratory: A part of the course deals with chemical physiology and the vital processes of the organs of the domestic animals. *Two hours, third term.*

108. Bacteriology: The principles of bacteriology and chief pathogenic organisms are carefully studied. *Three hours in class room and three in laboratory, first term and first half of second term.*

109. Pathology: This deals with the general pathological anatomy and histology as observed in man and different species of animals, and a study of the cellular changes in diseased tissues and organs. *Three hours recitations and three hours in laboratory, last half of the second term and entire third term.*

110. Obstetrics: Practical work is given as cases are presented. *Two hours, first and second terms.*

111. Special surgery: This includes surgery of the head,

eye, neck, chest, limb, skin, abnormal organs, urino-genital system and castration. It consists of lectures supplemented by practical operations. *Two hours, second and third terms.*

Botany: A study of medicinal and poisonous plants. *Six hours, third term.*

THIRD YEAR.

112. Surgical exercises: In these exercises the student is required to perform the principal surgical operations. *Two hours, second term.*

113. Infectious diseases: This is a study of the diagnosis and preventive sanitation of the animal plagues. *Two hours, first term; three hours, second term.*

114. Parasites: This subject deals with the parasitic infestations of man and animals. An abundance of material is available. *Two hours, second and third terms.*

115. Meat inspection: Embraces recitations, lectures, and abattoir inspections in the smaller and larger cities of the State. *Two hours, first and second terms.*

116. Milk inspection: The course includes the study of milk adulterants, sanitary construction of dairy barns and dairy houses, conditions of cows and the diseases of dairy cattle; the feed, the water supply, the dairy cans, bottles and wagons, the diseases and filth germ of milk. *Three hours, third term.*

117. Urinalysis: This course is largely laboratory work. *Three hours, third term.*

118. Toxicology: Is a study of the chemical, physical, physiological actions of poisons. The laboratory courses embrace the official tests for poisons. *Seven hours, third term.*

Thesis: Development and preparation of an original theme on some subject relating to veterinary medicine and surgery, or veterinary sanitation and hygiene, is required. *Four hours, entire year.*

FIRST, SECOND AND THIRD YEARS.

119. Comparative anatomy: Based upon the descriptive anatomy of the horse. It includes lectures and dissection. The course in anatomy is continued in the dissecting room throughout the first and second years, and the first term of the third year. The work will be taken up in the following order:

(a) Osteology: Requires a thorough knowledge of the bones of the horse and the comparative variations as found in the ox, pig, dog, and sheep.

(b) Arthrology: The course consists in a study of the joints or articulations and the synovial sacs.

(c) Myology: Includes a study of the muscles with their tendons and synovial sheaths or bursæ.

(d) Splanchnology: Treats of the internal organs found in the thorax and abdomen. Special attention will be given to these subjects in the horse, ox, sheep, pig, dog, and cat. It is designed both for the practitioner and meat inspector.

(e) Angiology: It treats of the blood vessels and heart and lymph vessels and glands. This is designed to meet the requirements of the practitioner and meat inspector; hence, the students must locate the lymph and glands in the horse, ox, sheep, pig, and dog.

(f) Neurology: Calls forth a study of the cerebro-spinal and sympathetic nervous systems.

(g) Special anatomy: Comprises the study of the organs of special sense, urino-genital organs, the foot and the larynx.

120. Materia medica and therapeutics: A study of the principal drugs used in veterinary medicine, their doses, physiological actions, therapeutic uses, and prescription writing. *Third term of second year; and first and second terms of third year.*

121. General surgery: This course embraces the general principles of surgery. *Two hours, third term of second year; and first term of third year.*

122. Clinical laboratory: Free clinics. Students are required to study each case. A great variety of cases is always presented. *One or two hours each day, second and third years, and three hours on Saturday for all classes.*

123. Veterinary medicine: This deals with the principles and practice of veterinary medicine. *Three hours, second and third years.*

COURSES FOR TEACHERS.

124. Physiology and hygiene—Teachers' course: The department can give the following line of instruction to prospective Alabama teachers.

1. Structure of human body and animals.

(a) Study of cells, tissues and organs.

(b) How to use the smaller animals in teaching naked-eye anatomy.

2. Physiological actions of the different parts and products of the animal and the human body. This embodies:

(a). Functional tests.

(b). Chemico-physiological tests.

3. Hygiene, embracing instructions in personal health problems.

4. Sanitation, including health conditions of cities, homes, public buildings, farms, barns, dairies, etc.

5. Care of animals on the farm and in the city.

TEXT AND REFERENCE BOOKS.

General Chemistry—Remsen's College Chemistry.

Physiology Recitations—Martin's Human Body.

Physiology Laboratory—Fish's Elementary Exercises in Physiology; Smith's Manual of Veterinary Physiology.

English—to be announced in September.

Anatomy—Sisson's Comparative Anatomy.

Clinical Laboratory—Blank Books or Note Books.

Histology—Piersol, Bohm, Davidaff and Huber, Bailey, and Lectures.

Embryology—Hertwig-Mark; Minot. Lectures.

Livestock Management—Lectures and text-books to be announced later.

Feeding Livestock—Smith; Henry; Jordan.

Animal Husbandry—Crang, and Lectures.

Botany—Lectures; Pammel's Poisonous Plants.

Pharmacy—Lectures; Stevens.

Bacteriology—Lectures; Moore's Bacteriology.

Pathology—Zeigler; Kitt; Adami; Kingsley.

Obstetrics—Williams; DeBruin; Fleming; Dalrymple.

General Surgery—Lectures and Frohner; Moeller.

Special Surgery—Lectures; Moeller; Merillat; Frohner.

Surgical Exercises—W. L. Williams.

Materia Medica and Therapeutics—Wilcox; Winslow; Fish; Quitman; Frohner.

Veterinary Medicine—Law, Vols. 1, 2, and 3. Mossou; Friedberger and Frohner.

Infectious Diseases—Moore—Law. Vol. 4.

Parasites—Neuman—Law. Vol. 5; Stiles; Kaupp.

Milk and Meat Inspection—Van Slyke; Conn; Ostertag; Peters; Eddleman; Eichhorn; Lectures.

Toxicology—Tanner; Fish.

Urine Analysis—Fish.

Restraint of Animals—White.

ORGANIZATIONS

CADET BAND.

A. L. THOMAS, BANDMASTER.

Three musical organizations are maintained—the band, the orchestra, and the glee club. Membership in these organizations is open to any student who has musical talent.

The band is maintained by the college for students who desire to develop their musical ability and for those who wish to learn music. It furnishes music for all college exercises and takes part in military manoeuvres. Regular and individual instruction is given free of charge during the first term, embodying the rudiments of music and general musical information in conjunction with the practical instruction on the instrument. Public concerts are given weekly during the second term, and engagements elsewhere are usually arranged.

A gold medal is given each year by the bandmaster to the member who makes the best record.

The orchestra is an organization for musical recreation, and members are carefully selected by the director according to their musical ability.

The glee club, comprising the quartet, chorus, and stringed instruments, is a student organization. The services of a musician are secured to assist with the instruction and training of the quartet and chorus. Two concerts are given at the college and concert tours are arranged during the second and third terms.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

S. J. SMITH, GENERAL SECRETARY.

This association is regularly organized and a suite of well furnished rooms has been secured for its exclusive use. Through its weekly meetings and Bible Study Classes it exerts a wholesome Christian influence among the students.

Students are advised to unite with the association when they enter the college.

The ladies of the different churches in Auburn are organized into an auxiliary association to the Y. M. C. A. of the college.

LITERARY SOCIETIES.

There are two literary societies connected with the Institute —the Wirt and the Websterian. Each has a hall in the main

building. These societies hold celebrations on the evenings of Thanksgiving day and 22nd of February.

To encourage the literary societies the trustees have directed that a medal be awarded at Commencement to the member of each society who is both efficient and regular in attendance, and who is the best debater. The method of selection is determined by the faculty.

SOCIETY OF THE ALUMNI.

The annual alumni oration is delivered by a member of the society in Langdon Hall on Alumni Day, Tuesday of Commencement week.

OFFICERS OF THE ALUMNI ASSOCIATION.

Hon. F. Lloyd Tate, '97, Wetumpka, Ala. ----------Orator
Thomas Bragg, '01, Auburn, Ala. ----------President
J. B. Lovelace, '14, Auburn, Ala. ----Secretary and Treasurer

Non-Resident Vice-Presidents.

E. N. Brown, '82 ----------Mexico City, Mexico
Francis C. Dillard, '75 ----------Sherman, Texas
E. A. Price, '80 ----------Nashville, Tenn
Arthur Redding, '94 ----------Atlanta, Ga.
Oliver J. Semmes, Jr., '97 ----------Pensacola, Fla.
M. S. Sloan, '01 ----------New Orleans, La.

Alabama Vice-Presidents.

B. B. Ross, '81 ----------Auburn, Ala.
W. W. Pearson, '82 ----------Montgomery, Ala.
C. W. Ashcraft, '88 ----------Florence, Ala.
Roger apC. Jones, '87 ----------Selma, Ala.
J. Thos. Heflin, '91 ----------Washington, D. C.
Tracy Lay, '03 ----------Gadsden, Ala.
Jno. V. Denson, '05 ----------Opelika, Ala.
J. R. Rutland, '00 ----------Auburn, Ala.
B. L. Shi, '04 ----------Auburn, Ala.
M. A. Frazer, '06 ----------Mobile, Ala.
Rev. Thomas Mangum, '96 ----------Union Springs, Ala.
Howard Lamar, '82 ----------Jasper, Ala.

ENGINEERING SOCIETY.

All students in the courses of engineering and architecture are eligible for membership in the Engineering Society. Meetings are held twice a month, and the chief purpose of the society is to promote personal fellowship among the members, and closer affiliation with practical engineers. Prominent engineers in all lines are invited to address the society from

Alumni Gymnasium

time to time upon subjects connected with their work. At other meetings the program is supplied by the student members, thus giving opportunity for the students in one department to become somewhat familiar with the problems met with in other lines of engineering.

Suitable quarters have been provided for the society in the new Broun Engineering Hall. No regular dues are required of the members, but an occasional assessment is made to cover necessary expenses.

AGRICULTURAL CLUB.

The Agricultural Club was organized in 1907. All students interested in agriculture and the agricultural sciences are eligible for membership. The members of the Agricultural Faculty take an active part in the work of the club. Meetings are held once a week, and an effort is made to promote interest in all lines of agriculture, to develop a spirit of good fellowship among the students of the course, and to bring them in contact with prominent workers of the science as opportunity offers to present them on the regular program.

Meetings are held in the club room in Comer Agricultural Hall.

VETERINARY MEDICAL ASSOCIATION.

The Veterinary Medical Association was organized in 1907. The meetings are held bi-weekly in the veterinary building. Medical subjects are discussed by the members or by some invited speaker or member of the veterinary faculty. All students of the Veterinary College are eligible to membership. The objects of the association are fraternal, intellectual and cultural. The annual banquet of this association is an occasion of good fellowship for the students, faculty, and veterinary alumni.

GYMNASIUM AND ATHLETIC FIELD.

The new Alumni Gymnasium offers improved facilities for complete physical training in outdoor and indoor work. The college authorities attach due importance to the value of robust, physical health. Military drill according to the Federal Law is required of all able-bodied students, and ample opportunity is also offered for work in the gymnasium and field sports. The aim of the athletic authorities is to develop, not only a set of highly trained athletic experts in particular fields of sports, but to interest each individual student in the care and development of the body through some form of athletic activity. While, therefore, every effort is made to maintain a high stand-

ard of athletic efficiency in various representative teams, every member of the "Auburn" student body is encouraged to gratify his love for games and sports, as well as to assimilate the "Auburn Spirit" in its intensest form; a spirit splendidly exemplified by the Alumni in making possible this handsome Gymnasium. This beautiful athletic home ranks "Auburn" as one of the best equipped colleges in the land for the development of the physical welfare of its students. Under present conditions it is possible for two thousand students to take physical exercise at the same time.

DRAKE FIELD—A new athletic field, named in honor of the Surgeon, Dr. J. H. Drake, has been provided for baseball, football, and track athletics. It is situated on the experiment station grounds near the gymnasium. It will be gradually beautified and equipped with necessary buildings and accommodations.

DISCIPLINE REGULATIONS.

The government of the college is administered by the president and faculty in accordance with the code of laws and regulations enacted by the trustees.

Each student upon entering is required to sign his name in the matriculation book and pledge himself to obey the rules and regulations of the college.

All students are required to wear the prescribed uniform.

Attention to study and punctuality in attendance on recitations and all other duties are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using or causing to be brought into the college limits, intoxicating liquors.

Students are not permitted to participate in any public entertainments, or game, without previously obtaining the consent of the faculty.

No student will be permitted without the approval of his parent or guardian, to take part in a public game of football.

No student who has failed in two or more subjects will be permitted to be absent from college for athletic contests or other purposes.

(a) Every absence from recitation or examination is graded zero.

(b) when the grade of a student is lowered by reason of absence, for which satisfactory excuse can be rendered, a special re-examination may be subsequently granted, and the

grade made on the special re-examination alone is substituted for that previously received.

(c) Only sickness, as reported by the surgeon, or absence by reason of family sickness, or official or collegiate business, will constitute a satisfactory excuse for granting a re-examination.

When a student is called away from college by his parents for reasons other than those specified above, his zeros for absence are not removed.

A student who, on surgeon's certificate, is excused from any subject will be required to substitute other work approved by the faculty.

The term grade of a student is the average of his daily sessional and term examination marks, found by giving due weight to the term examination.

Only privates of the senior class in full standing who are candidates for graduation may be excused by the president from all military drills, and also students over twenty-one years of age *at the time of entering college* that are permitted to devote their time to one special study, as chemistry, agriculture, pharmacy, or engineering, provided the time devoted to drill is spent by them in laboratory work.

No student can remain an officer who receives during the session more than one hundred demerits.

BOARDING.

The students board at Smith Dining Hall or with families of the town of Auburn, thus enjoying all the protecting and beneficial influences of the family circle.

For each house an inspector is appointed, whose duty it is to report those who are guilty of any violation of order. The report of the inspector is made to the commandant at stated intervals.

Students, after selecting their boarding houses, are not permitted to make changes without obtaining permission from the president, and this permission is given only at the close of a term, except for special reasons approved by the parent.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the senior class are exempt.

The drills are short and the duty involves no hardships. The military drill is a health-giving exercise, and its good

effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students, unless excused on the written request of parents for religious scruples, are required to attend these exercises, and also to attend the church of their choice on Sunday morning.

Opportunities are also offered for attending Bible classes every Sunday.

DISTINCTIONS AND HONORS.

Certificates of highest distinction and of distinction are given on the basis of credits, one credit being considered as the equivalent of one recitation per week for one term. Two hours of laboratory or shop work or drawing are counted as one hour of recitation. An undergraduate student taking less than an average of eighteen credit hours per term will not be eligible for distinction. Certificates will be awarded to those students who have not received more than forty demerits and who comply with the scholarship requirements announced by the faculty.

Members of the senior class who attain highest distinction are published as *Graduates with Highest Honor;* those who attain distinction are published as *Graduates with Honor;* seniors who do not attain distinction but who attain a grade of sixty per cent or above are published as *Graduates.*

RECORDS AND REPORTS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

At the close of each term and at regular intervals reports giving the grade made by each student are sent to the parent or guardian.

EXAMINATIONS.

Written examinations on the studies of the half-term are held by each professor during the months of October and February. Each examination occupies one hour.

At the end of each term written examinations or written and oral, are held on the studies passed over that term.

Special examinations are held only by order of the faculty and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations can be promoted to full standing in the next higher

class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters college shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except for providential reasons.

RE-EXAMINATIONS.

Re-examinations for deficiencies incurred by students before entering the senior class shall be set not later than the first week in April, except when deficiencies are being made up in class. Seniors failing in any subject will have two opportunities for removing the conditions.

No senior who fails on two final examinations will be re-examined.

No re-examination will be given seniors after the Saturday before Commencement.

HONOR SYSTEM.

During the session of 1910-11 the Honor System, which for years had been in effect in the higher classes, was adopted by the entire student-body of the institution, to apply to all work done in class room and on examinations. Under this system the student is pledged neither to give nor receive any assistance, whatsoever.

All students upon entrance subscribe to the Honor System as in force at this institution.

Proper regulations for administering the system have been adopted by the student-body.

The spirit of truth and honor, thus fostered in the examination room, is an efficient means of raising the scholarship, and tends to inculcate high ideals of honor among the students.

SCHOLARSHIPS—PRIZES.

The following scholarships and prizes have been established:

THE WILLIAM LEROY BROUN MEMORIAL SCHOLARSHIP OF $170, established by the Alumni Society, in memory of the late distinguished president of the Institute.

THE LIGON SCHOLARSHIP OF $170, established by Col. R. F. Ligon, Montgomery, Ala.

THE THOMAS SCHOLARSHIP OF $170, established by Judge William H. Thomas, Montgomery, Ala.

THE BALL SCHOLARSHIP OF $170, established by Mr. Fred S. Ball, Montgomery, Ala.

THE DUNKLIN SCHOLARSHIP OF $600, established by Mr. and

Mrs. J. C. Street, Opelika, Ala., in memory of Prof. J. T. Dunklin, former professor of Latin in the college.

THE 1908 SCHOLARSHIP OF $150, established by the Class of 1908.

THE ALICE CARR SCHOLARSHIP OF $180, established for young women by the late Miss Alice Carr, Auburn, Ala.

THE RANSOM MEMORIAL SCHOLARSHIP OF $125 per year, established by the Alumni Association in memory of the late Prof. A. McB. Ransom, is available for students in the junior and senior classes of the course in chemistry and metallurgy.

THE JEWISH LOAN SCHOLARSHIP OF $1,000, established by a former student of the college.

A scholarship has been established for worthy musicians who are in need of assistance in defraying their college expenses.

THE HENDERSON SCHOLARSHIP OF $100, established by Judge W. L. Henderson, of Miller's Ferry, Ala.

THE SIDNEY SMITH MEMORIAL SCHOLARSHIP OF $100, established by his parents, Mr. and Mrs. Smith, Bessemer, Ala.

THE C. S. YARBROUGH SCHOLARSHIP OF $1,000, established by Dr. C. S. Yarbrough, Auburn, Ala.

The scholarships enumerated above are loan scholarships, granted to worthy young men and women, to be returned after graduation.

THE ROBERT E. LEE MEMORIAL SCHOLARSHIP OF $100, an annual donation for the son of a Confederate veteran, established by the Children of the Confederacy of Alabama under the auspices of Mrs. Mary G. Pickens.

The above named scholarships and ten other scholarships are administered by the Alumni Society. (*For information, address J. B. Lovelace, Secretary*).

THE GRAYDON SCHOLARSHIP FUND OF $3000, established by the family of the late Augustus T. Graydon, of South Carolina, a loyal alumnus of the class of 1914.

SOUTHERN RAILWAY LOAN SCHOLARSHIP OF $1000, established by the Southern Railway in memory of the late W. W. Finley, President of the Southern Railway.

THE ARCHITECTS' PRIZES, medals to the two members of the senior class in the department of architecture who are most proficient in design. Established in 1911 by the Society of Architects in Alabama.

THE THOMAS ESSAY PRIZE, a gold medal offered by Hon. William H. Thomas, of Montgomery, Ala., for the best essay by any undergraduate student of the college. The essay must be written under the supervision of the department of English.

Library

THE ORATORICAL PRIZE, medal to that member of the junior class who composed and delivered the best oration on junior class day of Commencement. 1915, *James Warren Andrews*, Montgomery County.

THE ORATORICAL PRIZE, for the Annual Inter-Literary Society Contest, February 22, 1916: *Lovick Pierce Hodnette*, Macon County.

SOPHOMORE MEDAL IN DECLAMATION for Annual contest, May 1st, 1915: *Shu Min Wong*, China.

PRIZE FOR BEST DEBATER, a medal given annually by the Board of Trustees to the best debater in the Wirt and Websterian Literary Societies each. 1915: Wirt—*John Hosmer Campbell*, Clay County; Websterian—*Edmund Mitchell Manning*, Chilton County.

REGIMENTAL MEDAL, for the best drilled soldier. 1915: *Joseph Davenport Browne, Jr.*, Tennessee.

MUSIC MEDAL, 1915: *David Adolphus Gammage*, Barbour County.

PRIZE FOR BEST DRILLED COMPANY, a sword given by Board of Trustees. 1915: *Joel Philip Melvin*, Tennessee.

THE R. W. BURTON PRIZES, for excellence in drawing: 1915, mechanical drawing, *Yndalicio Elizondo*, Mexico; architectural drawing, *Owen Mahone Liles*, Escambia County; descriptive geometry, *Wilbur Thomas Shinholser*, Georgia.

LIBRARY.

LIBRARIAN, JAMES R. RUTLAND.

ASSISTANT LIBRARIAN, MISS MARY MARTIN.

The beautiful Carnegie library building is constructed of stone and pressed brick. The reading room is 80 x 40 feet, and the building is equipped with every convenience. It is lighted by electricity and heated by steam. The capacity of the stack room is sixty thousand volumes. The library now contains about 25,000 bound volumes, including valuable reference and scientific books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room and is thus made an important educational feature.

THE O. D. SMITH COLLECTION.

The library of the late Prof. O. D. Smith has been presented to the college by Mrs. O. D. Smith, and is preserved as a memorial to his long and distinguished services to the college.

THE F. D. PEABODY MEMORIAL ROOM.

Through the generosity of Mr. George Foster Peabody, New York City, an annual fund of fifty dollars, income from a permanent investment, is available for the purchase of books and furniture for the "F. D. Peabody Memorial Historical Seminary." F. D. Peabody, Esq., was a distinguished graduate of the Class of 1876.

THE W. D. TAYLOR MEMORIAL COLLECTION.

The engineering library of the late W. D. Taylor, chief engineer of the Chicago and Alton Railway, was bequeated by him to the Alabama Polytechnic Institute, and is preserved by the college as a memorial to this distinguished alumnus. Mr. Taylor was a graduate of the class of '81, and was regarded as one of the leading civil engineers of the United States.

MUSEUM.

The Museum occupies a large room in the third story of the Main Building. It is provided with suitable cases and is equipped with valuable specimens and models of an instructive character.

UNIFORMS.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made by a contractor, and are of excellent cloth manufactured at the Charlottesville mill. A suit, including cap, costs at present $15.50. It is neat and serviceable, and less expensive than ordinary clothing.

LABORATORY FEES.

Each student in the following courses is required to pay the laboratory fee specified:

Chemical laboratory	$ 5.00
Pharmacy laboratory	5.00
Electrical engineering laboratory	5.00
Mechanical engineering laboratory	5.00
Veterinary medicine (dissecting fee)	10.00
Dairy laboratory	3.00
Soils laboratory	3.00
Horticultural laboratory	1.00
Botanical laboratory	1.50 to 2.50
Civil engineering (surveying)	1.00
Civil engineering (road materials laboratory)	1.00
Civil engineering (summer camp, including board)	18.00

Special students in laboratory work will pay additional fees

for each separate division of work, and will be charged with all material consumed in experiments.

CONTINGENT FEE.

A contingent fee of $2.50 is required to be deposited by each student on matriculation to cover any special or general damage to college property for which he may be liable. General damages are assessed on the body of students.

At the close of the session, the whole of the contingent fee or the unexpended balance, is refunded to the student.

FUNDS OF STUDENTS.

Parents or guardians are advised to deposit with the treasurer of the college all funds desired for sons or wards, whether for regular charges, college fees or board or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc.

The college cannot be held responsible for the expenses of a student unless the funds are deposited under specific instructions from the parent or guardian to the treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble and encourages idleness.

NON-RESIDENT STUDENTS.

Tuition for students not resident of Alabama is $20.00 per session, unless remitted by the trustees to worthy students upon the recommendation of the faculty.

The remission of this tuition fee to non-resident students will be granted in the form of a free scholarship for the succeeding year to those who obtain a distinction the preceding year, or who, by reason of merit, are deemed worthy.

This tuition for non-residents is remitted to sons of ministers of the Gospel.

The following non-resident students were granted, each by reason of special merit in conduct and scholarship during the session of 1914-1915 an honor scholarship, which exempted from tuition fees:

William Wallace Allen ..... Florida
William Lee Blanton ..... Florida
Joseph Davenport Browne, Jr. ..... Tennessee
Thaddeus Lamar Glenn ..... South Carolina
William Arnold Guess ..... Mississippi
Henry Lord Page King ..... Georgia
James Belser Mayes, Jr. ..... Georgia

William Charles Payne, Jr. ..... Tennessee
Alan Benjamin Pimm ..... Florida
Wilbur Thomas Shinholser ..... Georgia
Frank King Simmons ..... Florida
Ernest Slager ..... Tennessee
John Alan Strozier ..... Georgia
William Woodward Sullivan, Jr. ..... South Carolina
Lovell Lack Turley ..... Missouri
Francis Bryan Wakefield, Jr. ..... Florida
Lamar Mims Ware ..... Georgia
Shu Min Wong ..... China

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Board, including lodging, fuel, and lights, is furnished at $14.00 to $18.00 per month.

By special arrangement with the college authorities, Mrs. M. M. O'Neal and Mr. B. T. Blasingame will accommodate students with board and lodging for $14.00 per month.

For non-residents of the State, there is a charge of tuition of $20.00 per session, payable on matriculation, in addition to the annual fees payable by all students. A student once entering as a non-resident will not be permitted to claim residence unless his parent or guardian becomes a resident or taxpayer on property in Alabama. Tuition for non-residents is remitted to sons of ministers of the Gospel.

AMOUNT OF DEPOSIT.

All fees, including laboratory fees are payable on matriculation. *By order of the Trustees a matriculation fee of* $12.00 *is retained from deposits of students who withdraw. To students who withdraw after one month's residence in college only the remainder of the laundry fee and the contingent fee, less charges, may be returned; no laboratory fee may be returned; after the beginning of the third term only the contingent fee may be returned.*

Fees to be paid on entrance:

Incidental	$ 5.00	
Library	2.00	
Surgeon	5.00	
Contingent	2.50	
Athletic	6.00	
Uniform	15.50	
Laundry fee for session	12.50	
For a resident of Alabama	$48.50	$48.50
Tuition non-resident		20.00
For a non-resident		$68.50

THESIS.

Each applicant for a degree is required to write and submit to the faculty a thesis, or oration and read or deliver the same at Commencement, if required by the faculty.

There may be presented with the approval of the professor in charge, a carefully written report of special work done in a laboratory, showing independent investigation and discussion of some subject.

It must be given to the professor by the first of May. The subject must be submitted for approval by January 1st.

SURGEON.

The Surgeon is required to be present at the college daily, to visit at their quarters the cadets that are reported sick, and give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering the Institute.

An infirmary has been established, and is properly equipped.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railway of Alabama.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty six feet above tidewater. By statute of the State the sale of spirituous liquors and the keeping of saloons of any kind are forbidden.

ACADEMIC YEAR.

The academic year for 1916-1917 commences on Wednesday, September 13, 1916, and ends on Tuesday, June 12, 1917, which is Commencement Day.

It is divided into three terms: The first term extends from the opening of the session to Thursday, December 21st; the second term begins Wednesday, January 3rd, and ends March 26th; the third term continues to the end of the session.

INDEX

	PAGE
Academic Year	183
Admission	56
Admission on Certificate	58
Admission from other Colleges	61
Agricultural Club	173
Agricultural Experiment Station	9
Agronomy	17, 62, 83, 85, 143
Alumni	172
Animal Husbandry	20, 86, 157
Architecture	16, 78, 131
Astronomy	105
Athletics	173
Band	54, 171
Boarding	175, 182
Botany	18, 86, 146
Buildings of the College	21
Cadet Officers	52
Calendar 1916-1917	3
Catalogue of Students	30, 48
Certificate Schools	58
Changes in Course	61
Chemical Engineering	17, 79, 80
Chemistry	17, 79, 80, 86, 139
Civil Engineering	11, 73, 114
Classification of Students by Residence	47
Classification of Students by Studies	47
College Established	10
College, Object of	10
College of Agricultural Sciences	17, 83, 139
College of Engineering and Mines	11, 72, 114
College of Veterinary Medicine and Surgery	21, 89, 164
Committees of the Faculty	8
Conditions, Removal of	61
Courses of Instruction	61, 71, 93
Degrees	63
Discipline	174
Distinctions	176
Distinguished Students	28
Drawing	17, 133
Economics	93
Education	107
Electrical Engineering	11, 74, 119
Electricity, Applied	81
Engineering Society	172
English	93
Entomology	20, 155
Examinations, Entrance	59
Examinations, Monthly and Term	176
Expenses	181
Exercises Required	60
Experiment Station Council	9
Extension Work	163
Faculty and Officers	5
Farm	20

PAGE
Fees, Alabama Students 182
Fees, Non-Residents 182
Fee, Contingent 180
Fees, Laboratory 180
French 100

General Course 71
German 102
Geology 15, 128, 129
Graduate Courses (see each department also) 64
Graduates, 1915, Roll of 24
Gymnasium 23, 173

History 21, 97
Honor Graduates 24, 176
Honor Scholarships 181
Honor Students 28
Honor System 177
Horticulture 19, 85, 153

Laboratories 66
Laboratory Facilities:
- Agriculture 18
- Animal Husbandry 20
- Architecture 16
- Botany 18
- Chemistry 17
- Civil Engineering 11
- Drawing 17
- Entomology 20
- Electrical Engineering 11
- History 21
- Horticulture 19
- Mechanic Arts 13
- Mechanical Drawing and Machine Design 17
- Mechanical Engineering 12
- Military Tactics 21
- Mineralogy 15
- Mining Engineering 15
- Ore Dressing 16
- Pharmacy 19
- Physics 21
- Physiology 21
- Veterinary Science 21

Laboratory Fees 180
Latin 99
Library 23, 179
Literary Societies 171
Location 183

Mathematics 103
Mechanic Arts 13, 81, 122
Mechanical Drawing and Machine Design 17, 133
Mechanical Engineering 12, 75, 122
Medical Attendance 183
Metallurgy 80
Military Drill 175
Military Organization 52, 106
Military Science and Tactics 106
Military Science, Distinguished Students in 54

INDEX

	PAGE
Mineralogy	15, 129
Mining Engineering	15, 76, 82, 128
Modern Languages	100
Museum	180
Non-Resident Students	181
Objects of the College	10
Officers, Cadet	52
Officers, College	8
Officers of Experiment Station	9
Orations	94
Organization, Colleges	68
Pharmacy	19, 87, 151
Psychology	93
Physics	21, 104
Physiology	21, 164
Political Economy	93
Post-Graduate Courses	64
Prizes	177
Professional Degrees	65
Public Speaking	94
Records	176
Re-Examinations	177
Registration	56
Regulations	174
Religious Services	176
Reports	176
Requirements for Admission	56
Road Foremen and Inspectors, Course for	82
Scholarships	177
Societies, Literary	171
Society of the Alumni	172
Spanish	103
Special and Irregular Students, Regulations	60
Station Council	9
Students, Roll of	30
Summer Session	112
Surgeon	183
Surveying	11, 114
Teachers' Courses	111
Thesis	182
Trustees	4
Uniforms	180
Veterinary Medicine	21, 89, 164
Veterinary Medical Association	173
Veterinary Science	21, 164
Wireless Telegraphy	82, 122
Woodwork	122
Women Admitted to College	60
Young Men's Christian Association	171

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Vol. XII No. 1

THE BULLETIN

OF THE

ALABAMA POLYTECHNIC INSTITUTE

AUBURN

CATALOGUE
1916-17

ISSUED MONTHLY
BY THE INSTITUTE
MARCH, 1917

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CATALOGUE

OF THE

ALABAMA POLYTECHNIC INSTITUTE

STATE COLLEGE

FOR THE BENEFIT OF
AGRICULTURE AND THE MECHANIC ARTS

AUBURN, ALABAMA

1917

1917
POST PUBLISHING COMPANY
OPELIKA, ALA.

CALENDAR FOR 1917-18-19

1917

JULY

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COLLEGE CALENDAR 1917–18

Summer Session	June 14 to July 25, 1917
Examination for Admission Begins	Monday, Sept. 10, 1917
Session Begins	Wednesday, Sept. 12, 1917
First Term Begins	Wednesday, Sept. 12, 1917
Mid-Term Examinations	Oct. 22, 23, 24, 1917
Literary Society Celebration	Nov. 29, 1917
First Term Ends	Thursday, Dec. 20, 1917
Second Term Begins	Wednesday, Jan. 2, 1918
Mid-Term Examinations	Feb. 9, 11, 12, 1918
Senior Class Exercises	Feb. 22, 1918
Literary Society Celebration	Feb. 22, 1918
Second Term Ends	Monday, March 25, 1918
Third Term Begins	Monday, March 25, 1918
Senior Theses Reported	May 1, 1918
Declamation Exercises	May 1, 1918
Field Day	May 1, 1918
Final Examinations Begin	Saturday, May 25, 1918
Junior Class Orations	Saturday, June 8, 1918
Commencement Sermon	Sunday, June 9, 1918
Annual Meeting of Trustees	Monday, June 10, 1918
Alumni Day	Monday, June 10, 1918
Senior Class Orations	Monday, June 10, 1918
Festival of Lights, 8 P. M.	Monday, June 10, 1918
Commencement Day	Tuesday, June 11, 1918

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WM. F. FEAGIN, Superintendent of Education.....*Ex-Officio*

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HARRY HERZFELD (*Fifth District*).....Alexander City, Ala.
OLIVER R. HOOD (*Seventh District*).....Gadsden, Ala.

TERM EXPIRES 1923

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J. A. ROGERS (*Sixth District*).....Gainesville, Ala.
C. M. SHERROD (*Eighth District*).....Courtland, Ala.

TERM EXPIRES 1927

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W. H. OATES (*First District*).....Mobile, Ala.
T. D. SAMFORD (*Third District*).....Opelika, Ala.
P. S. HALEY (*Tenth District*).....Corona, Ala.

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†In co-operation with United States Department of Agriculture.

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EMERY TYLER MOTLEY, M. S., Instructor in Pharmacy.
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CHARLES HEREFORD GILMOUR, E. M., Assistant in Mining Engineering.
LEE IRWIN DAVIS, B. S., Assistant in Mechanic Arts.
JAMES WARREN ANDREWS, B. S., Assistant in History and Latin.
ROBERT EMMETT CAMMACK, B. S., Assistant in Horticulture.
THOMAS WILLIAM CLIFT, B. S., Assistant in Chemistry.
EDWARD SAMUEL GATCHELL, B. S., Assistant in Drawing.
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GEORGE LAMPROS, B. S., Assistant in Drawing.
FRANK KITCHELL NESBITT, A. B., Assistant in Library and English.
JAMES GOGGINS PETERSON, B. S., Assistant in Agronomy.
PERCY REYNOLDS SMITH, B. S., Assistant in Civil Engineering.
PHILIP NICHOLAS SOWELL, B. S., Assistant in English and History.
LOUIS TRUITT WELLS, B. S., Assistant in Animal Husbandry.
SAMUEL ANDREW WINGARD, B. S., Assistant in Agronomy.
JEFFRIES NATHANIEL DUBBERLY, Ph. G., Assistant in Pharmaceutical Chemistry.
LAWRENCE MARVIN MCRAE, Assistant in Botany.
WALTER HUGH ROBERTS, Assistant in Mechanic Arts.
JAMES DONALD RUSSELL, Laboratory Assistant.
ERNEST LINWOOD DEAL, Laboratory Assistant.
GORDON WORLEY, Assistant in Botany.
YNDALICIO ANDRES ELIZONDO, Assistant in Spanish.
CHARLES L. ISBELL, Laboratory Assistant.
P. F. BAHNSEN, Lecturer on Clinical Diagnosis and Lameness.
GEORGE R. WHITE, M. D., D. V. S., Lecturer on Animal Restraint and Surgical Operations.

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J. H. DRAKE, M. D., Surgeon.
M. A. GLENN, Treasurer.
JAMES BAXTER JACKSON, M. S., Analyst.

JAMES CLIFFORD SCHOENLAUB, D. V. M., Supervisor Serum Laboratory.

MARY E. MARTIN, Assistant Librarian.

DAGNALL FRANK FOLGER, B. S., Secretary of Young Men's Christain Association.

MRS. H. M. GRATTAN, Matron, Smith Dining Hall.

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Committee on Entrance Examinations—Professors Petrie, Wiatt, Crenshaw, Messick, Rutland, Shi.

Committee on Examination of Special Students—Professors Wilmore, Dunstan, Duggar, Blake, Hinds.

Committee on Public Lectures—Professors Petrie, Wiatt, Mitcham, Brown, Shi, Robbins.

Committee on Library—Professors Rutland, Wiatt, Duggar.

Committee on Athletics—Professors Ross, Mitcham, Dunstan, Brown, Hare.

Committee on Grounds and Buildings—Professors Wilmore, Starcher.

Committee on Alumni Appointments—Professors Shi, Petrie, Ross, Wilmore, Duggar, W. C. Blasingame.

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HON. R. F. KOLB.....Montgomery
HON. A. W. BELL.....Anniston
HON. J. A. ROGERS.....Gainesville
HON. C. S. MCDOWELL, JR.....Eufaula

STATION STAFF

C. C. THACH, President of the College

J. F. DUGGAR, Director of Experiment Station and Extension

AGRICULTURE:

J. F. Duggar, Agriculturist.
E. F. Cauthen, Associate.
M. J. Funchess, Associate.
J. T. Williamson, Field Agt.
O. H. Sellers, Assistant.
O. L. Howell, Assistant.
F. E. Boyd, Assistant.

VETERINARY SCIENCE:

C. A. Cary, Veterinarian.

CHEMISTRY:

* J. T. Anderson, Chemist, Soils and Crops.
C. L. Hare, Physiological Chemist.
————, Assistant.

BOTANY:

W. J. Robbins, Botanist.
A. B. Massey, Assistant.

PLANT PATHOLOGY:

G. L. Peltier, Pathologist.

HORTICULTURE:

G. C. Starcher, Horticulturist.
J. C. C. Price, Associate.
P. O. Davis, Field Agent.

ENTOMOLOGY:

W. E. Hinds, Entomologist.
F. L. Thomas, Assistant.
E. A. Vaughan, Field Asst.

ANIMAL HUSBANDRY:

G. S. Templeton, Animal Husbandman.
H. C. Ferguson, Assistant.
E. Gibbens, Assistant.
F. W. Wendt, Assistant.
A. E. Hayes, Assistant.

AGRICULTURAL ENGINEERING:

R. U. Blasingame, Agricultural Engineer.

* Deceased.

The Institute is a distinctive school of science and its applications; being also the State College for the benefit of Agriculture and the Mechanic Arts, established by the State in 1872 by endowing it with the land grant appropriation made by the United States Congress in 1862.

The leading object of the Institute, in conformity with the Act of Congress and the Acts of the State Legislature, is to teach the principles and applications of science.

In its courses of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline and liberal education obtained by the study of language and other sciences are not neglected.

All students are required to study the English Language. The Latin, French, Spanish and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the faculty. The Institute thus endeavors to educate as well as to instruct, to form character as well as give information of value.

ORGANIZATION

The instruction offered by the College is arranged in four divisions: (1) College of Engineering, Mines and Architecture, (2) College of Agricultural Sciences, (3) Academic Departments, (4) College of Veterinary Medicine and Surgery.

I. The College of Engineering, Mines and and Architecture offers degree courses in (1) civil engineering, (2) electrical engineering, (3) mechanical engineering, (4) mining engineering, (5) chemical engineering, (6) chemistry and metallurgy, (7) architecture, and (8) architectural engineering.

In addition, students in these courses of the College of Engineering, Mines and Architecture receive instruction in other departments as follows: Mechanical drawing and machine design, English, mathematics, history and Latin, modern languages, physics, chemistry, and military science and tactics.

II. The College of Agricultural Sciences offers regular degree courses in (1) agronomy, (2) chemistry, (3) botany, (4) horticulture and forestry, (5) animal husbandry, and (6) pharmacy; a three-year course in pharmacy; a two-year course in pharmacy; a two-year course in agriculture.

In addition students in the different departments of the College of Agricultural Sciences receive instruction in other departments as follows: English, history and Latin, modern languages, mathematics, mechanic arts, surveying, physics, geology and mining engineering, mechanical drawing and machine design, military science and tactics, and veterinary science.

III. A degree course is offered in the following subjects: Education, political economy, mental science, English, history and Latin, modern languages, mathematics, physics, military science and tactics.

In addition students in the general course receive instruction in the following technical departments: Mechanic arts, drawing, geology, animal husbandry, chemistry, botany, and agronomy.

IV. The College of Veterinary Medicine and Surgery offers a four-year course leading to the degree of Doctor of Veterinary Medicine. This college comprises the following departments: Veterinary medicine, physiology, surgery, anatomy, therapeutics, pathology, histology, bacteriology, obstetrics, infectious diseases, meat inspection, milk inspection, and animal parasites.

FACILITIES FOR INSTRUCTION

The Institute possesses facilities for giving laboratory instruction in history, Latin and the departments of applied science.

COLLEGE OF ENGINEERING, MINES AND ARCHITECTURE.

I. Civil Engineering.—The department of civil engineering is located in Broun Hall, and occupies two lecture rooms, a drafting room, an office, an instrument room and a road materials laboratory. It is equipped with transits, levels, plane tables and other instruments necessary for giving field practice in the several branches of surveying.

A very complete camping outfit, consisting of tents, cots, stools and kitchen and mess tent outfit, is available for use in the summer camp and school of surveying.

The drafting room is spacious and well lighted, and is equipped with well appointed drawing desks, tables, filing cases, models of bridges and roofs, and a large number of blue prints donated by various bridge companies for study and comparison by students in bridge and structural design.

In practical hydraulics, the college water works system, including pipe lines, pumps, stand pipe, bored wells with air lifts, fire hose and nozzles, etc., are available for use of the students; and the students also determine the flow in several natural streams with aid of current meters and weirs. There is a number of large and small hydro-electric plants relatively near Auburn, and visits of inspection are made by students to these plants.

II. Electrical Engineering.—In the engineering building four rooms and two offices are used by the department of electrical engineering. Two rooms are class rooms, another is used for the telephone laboratory, and the fourth is a laboratory for electrical measurements.

The wiring in this building is arranged so that alternating and direct currents of various voltages for power, lighting, and experimental purposes can be delivered to any room.

In connection with the laboratories there is installed a repair and construction shop furnished with a variety of hand tools and with power-driven machine tools.

A large amount of electrical testing and measuring apparatus as well as commercial machinery has recently been installed in the laboratories.

(*a*) The electrical measurement laboratory is furnished with a variety of resistance boxes, bridges, galvanometers, standard cells, condensers, etc., as well as two photometers. In addition to the laboratory instruments proper, just noted, the department

is provided with representatives of most of the types of commercial ammeters, voltmeters, and indicating and recording wattmeters for A. C. and D. C. work. There is also a 30,000 volt transformer for break-down tests of insulating materials.

(*b*) The Telephone laboratory is provided with a full line of telephonic apparatus, telephones, relays, condensers, plugs, jacks, lamp and other signals, etc., representative of the Bell and a number of independent telephone companies.

Single pieces are so mounted that they can be connected up in any desired manner and thus the connections of any particular system can be made up and tested out.

Twenty cells of Edison storage battery are used to furnish energy for a board equipped for common battery and magneto service with trunking circuits. This board is a standard 100 line board equipped with one strip of twenty answering and multiple jacks, ringing, listening keys, and cord signals for four cords.

(c) The laboratory is equipped with a large number of D. C. and A. C. generators, motors, and other appliances especially adapted for experimental work. In addition the equipment of the power plant is so arranged as to be readily available for purposes of instruction and investigation.

The machines for experimental work are arranged on testing platforms rendering them readily accessible. By means of a comprehensive wiring layout with individual connection boards for each machine, a wide variety of combinations of machines can easily be made.

The main power plant supplies power for operating all shops, and laboratories, pumping water, and lighting the town of Auburn. The connected motor load is a little over 250 horse power, and about 100 killowatts are used for lighting service. This plant therefore affords unusual opportunities for students to obtain practical experience in the operation of steam and electrical machinery under commercial conditions.

III. Mechanical Engineering.—The laboratory work is considered an important part of the course and is arranged as far as possible to illustrate and supplement the work as carried on in the class room.

The steam and heat engineering laboratory is located on the first floor of Broun Hall, and the following apparatus is available for instruction: A 35-horse power cross compound engine, especially arranged for experimental work; a surface condenser with air and circulating pumps attached; a 20-horse power slide valve engine; an electric head light engine; a 15 horse power steam turbine; steam pumps, hot and cold water meters, tanks, scales, indicators, calorimeters, thermometers, pyrometers, steam gauges and apparatus for testing steam gauges.

In the line of internal combustion engineering the following apparatus is available for instruction purposes: A 12-horse power four stroke cycle engine using gasoline or kerosene, a 4½-horse power four stroke cycle kerosene engine, a 2½-horse power kerosene engine, a 2-horse power two stroke cycle gasoline engine, an Ericsson hot air engine, a motor driven air compressor with motor, a volume blower, and the necessary tanks, scales, indicators and other auxiliary apparatus necessary for making tests.

A refrigerating plant of 2½ tons capacity, including ammonia condenser and cooling coils, brine circulating system, pumps, meters, weighing scales and all apparatus needed for a study of the refrigeration cycle. The plant is driven by a steam engine, and provision is made to measure the power delivered and steam consumption of the engine.

The equipment of the power house is also available for instruction, and consists of the following: A 300-horse power poppet valve engine; a 160-horse power angle compound engine; a 60-horse power simple engine; a 200- horse power water tube boiler; a 100-horse power water tube boiler, two locomotive air pumps.

Another room on the first floor of Broun Hall has been fitted up for a laboratory for testing of materials. In it are installed a Riehle testing machine arranged for making transverse, compression and tension tests, and micrometer apparatus for measuring the deformation of the specimen under test, and an Olsen torsion testing machine with auxiliary apparatus. There is also provided a cement testing outfit consisting of a testing machine, sieves, briquette moulds, boiler, and other apparatus for testing the strength, setting properties, fineness, and specific gravity of cement.

On the second floor of Broun Hall is located a laboratory for testing fuels, furnace and illuminating gases, and lubricants. The present equipment consists of a Mahler bomb calorimeter and a Parr calorimeter, for determining the heating value of fuels, complete apparatus for collecting and testing flue and furnace gases, apparatus for determining viscosity, the specific gravity, flash point, the coefficient of friction, and other properties of lubricating oils. A small electric motor furnishes power for grinding samples, driving blower for air blast, stirring, and other such work.

IV. Mechanic Arts.—The instruction in shop work is used as an auxiliary in technical education, and as a school of manual training in the arts that constitute the foundation of most industrial pursuits. The work performed by the students is instructive in character, and is intended to give the greatest mount of instruction in principle with the least repetition of

operations, and the smallest consumption of time. The work is executed from drawings, and the instructor in charge of the class makes the lessons before the class, or gives such specific directions as may be necessary to enable the student to make them. This is suplemented by individual instruction.

All students in the freshman class take this shop work, three periods a week, each period being two hours long. The sophomore class takes two periods a week. The purpose is not to teach a trade, but to train the eye, the hand, and the mind to more perfect co-operation, a training which will be of value in any pursuit in life. This training involves the principles at the foundations of all trades, of equal value to the student who wishes afterwards to learn a trade.

Three-phase electric motors are used for driving the different shops, the motors receiving current from the large alternator in the power house.

(*a*) The wood department is located in a room 90 x 50 feet, and is provided with a surface planer, a variety saw, a swing cut-off saw, a boring machine, and a grindstone. There are in addition, thirty benches for carpentry work, with the necessary tools.

(*b*) The wood turning and pattern shop is located in a commodious room 40 x 60 feet, in the second story of the new power house. It is equipped with twenty-eight wood-turning lathes, a grindstone, a band saw, a buzz planer, a pattern maker's lathe, a double circular saw, a surface planer and a drum sand-papering machine.

In each of these departments special tools for occasional use are kept in a tool room for the purpose.

In addition to the regular carpentry tools in the benches each student is supplied with a set of chisels, and plane irons, with a locker to keep them in, and is held responsible for their care and condition.

(*c*) The forge shop is equipped with twenty-four down draft forges, with anvils, hammers, sledges, and other tools necessary for blacksmith work, including a punch and shear for cutting and punching iron, and a blacksmith drill. The blast is supplied by a blower driven by an electric motor. The smoke from the forges is removed through underground passages by a 60-inch exhaust fan and discharged into the chimney.

(d) The foundry is equipped with a 23-inch Colliau cupola, having a melting capacity of 2,000 pounds of iron per hour, the necessary molding tools for bench and floor work, benches, a core oven, ladles, molding flasks, a foundry crane, etc. A special blower driven by an electric motor is provided to furnish air blast for the cupola. There is also a brass furnace with

crucibles, crucible tongs and the appliances necessary for making brass castings.

(*e*) The machine shop is a room 30 x 100 feet, and is equipped with ten 14-inch, two 16-inch and one 18-inch engine lathes, one 10-inch speed lathe, a 20-inch drillpress, a 10-inch sensitive drill, a 16-inch shaper, two iron planers, one 22-inch by 5 feet and the other 26-inch by 6 feet, a back geared universal milling machine, with vertical milling attachment, a water tool grinder, a bench grinder, a universal grinding machine, a universal cutter and reamer grinder, a twist drill grinder, and two power hack saws. Four of the engine lathes have compound rests, three have taper attachments, and one is fitted with a turret and a large number of special tools and fixtures which practically convert it into a manufacturing lathe, and serve to illustrate the methods of manufacture by duplicate parts.

For chipping and filing, eighteen benches are fitted with vises and each student is supplied with hammer, chisels, files and such other tools as he may need, and a locker in which to keep them. A gasoline engine is installed in one end of the shop, and is used for driving when the steam plant is not running. The tool room is supplied with general machinist tools, such as chucks, drills, reamers, taps, dies, gauges, jigs, and special tools. A convenient room is supplied with lockers for keeping clothes, and basins supplied with hot and cold water for the use of the students. The different shops are equipped with electric lamps, and current is furnished when necessary.

V. Mining Engineering, Geology, Mineralogy.—The Department of Mining and Geology occupies parts of the first and third floors on the east wing of the Engineering Building. On the third floor the department occupies four rooms and office. The four rooms are all of about the same size, occupying about 960 square feet of floor space each: (1) lecture and recitation room, (2) mineralogical laboratory, (3) geological exhibit room, (4) drafting room. The class room has a seating capacity of sixty-four. The drafting room can accommodate twenty simultaneously. Here instruction is given in mechanical drafting, the calculation and plotting of field notes and in graphical design of mine structures.

In the mineralogical laboratory there are accommodations for thirty-six. Each student is supplied with drawer, locker, and the necessary equipment for studies in crystallography, mineralogy and lithology. In the exhibit room adjoining is maintained a good type collection of minerals and lithological specimens as well as working specimens. There is also a collection of fossils and casts illustrating historical geology. Other equipment of the geological department consists of wooden, transparent, and skeleton crystal models; specific gravity balan-

ces; contact and reflecting goniometers; a petrographic microscope and slides for both microscope and stereopticon lanterns.

VI. Ore Dressing.—The ground floor is occupied entirely by the metallurgical laboratory. The laboratory is well equipped with ore dressing plants. The concentrating plant consists of a gyratory crusher, two sets of roll crushers, two bucket elevators, four trommels or revolving screens, two classifiers, four Hartz jigs and a seven-foot Wilfley concentrating table.

The stamp mill is of full size Nissen type, circular discharge and interior amalgamating plate. The outside amalgamating plate is full size, being ten feet long. The stamp mill and concentrating plant are fed from their respective bins by two different types of automatic feed. The ore before entering the bin is crushed to proper size by a Blake jaw crusher. The model cyanide plant illustrates the leaching department of the cyanide process and the extractor box work. It consists of one solution tank, two sand tanks, with false bottoms and filters, one gold tank, and a set of extractor box compartments of the up-flow type.

Besides the equipment already mentioned there is an automatic sampler. The cement floor in this department gives a good surface for illustrating coning and quartering in the process of hand sampling.

A twenty-horse power motor is the source of power for this laboratory. Shafting, belting and gears of various kinds transmit the power to the various machines so that a large variety of mechanism is illustrated.

VII. Mechanical Drawing and Machine Design.—The department of mechanical drawing and machine design is supplied with equipment for teaching mechanical drawing, descriptive geometry, kinematics and machine design.

A convenient cabinet is supplied with a complete set of Schroeder's descriptive geometry models for demonstrating the principles of descriptive geometry and mechanical drawing. A small reference library and a library of selected catalogues of manufacturers, which is being established for the use of students in advanced machine design, occupy a suitable case. A Beck vertical wall file, 36 x 48 inches, for filing commercial blue prints, is filled with selected blue prints furnished by prominent manufacturers, and is made use of by students in machine design.

A number of kinematic models and a large collection of engineering specialties, sectioned to show interior, which were donated by the various manufacturers, occupy a sectional case, and are used in elementary work in machine design and mechanical drawing. The filing envelopes, which contain the

students' drawings, are kept in alphabetical arrangement in a case of drawers.

This department is equipped with an outfit for making blue prints, consisting of two sun printing frames 18 x 24 inches and 30 x 42 inches, each mounted on a car and track and suitable conveniences for washing and drying the prints.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. Four large well-lighted drawing rooms which will accommodate (at one period) two hundred and fifty students, are provided with tables, lock boxes, etc. The drawing rooms have been equipped with one hundred and fifty new drawing tables of the most modern pattern.

VIII. Architecture.—The department of architecture is provided with four well lighted rooms in the Main Building. The drafting room is open from 8:00 A. M. to 10:00 P. M., and each student has his own table to which he may come at any time, and a steel locker for materials; members of all classes are together in this room, and the younger men find inspiration in the work of the older ones. The studio for freehand drawing and water color painting is furnished with adjustable tables, and a good collection of models and plaster casts of sculpture and architectural details.

The architectural library is conveniently located with respect to other rooms of the department, and the books, journals and drawings are freely accessible to students during working hours; under proper restrictions books may also be taken out for home use. The equipment of the lecture room includes a lantern and a carefully selected collection of slides. Quarters for clay modeling are fitted out in Broun Hall.

For advanced work in construction the department of architecture has at its disposal the resources of the various engineering laboratories. In the civil engineering testing laboratory the student investigates the properties of materials, such as cement, stone, brick and steel; in the mechanical laboratory he becomes acquainted with the processes involved in the heating and ventilation of buildings, and the operation of steam and gas engines; in the electrical laboratory he gains a knowledge of dynamo electric machinery, and methods of wiring and illumination of buildings.

On file in the office of the department is a growing collection of working drawings and specifications contributed by practicing architects. A practically permanent display of rendered drawings is maintained on the walls, student problems in design being hung as completed for purposes of inspection and criticism.

COLLEGE OF AGRICULTURAL SCIENCES.

IX. Practical Chemistry.—The chemical apparatus recently purchased for the chemical laboratory consists of a full supply of the most improved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to the first class laboratories, there have been imported a new and improved Schmidt and Heinsch's polariscope, ten short-arm balances of latest pattern, Bunsen's spectroscope, Abbe refractometer, and other instruments for delicate and accurate work.

The investigations that are undertaken in this laboratory by scientific experts in connection with the work of the agricultural experiment station, are of special value to advanced students, and afford them unusual opportunities to learn the methods of scientific research.

The building contains a large general laboratory that accommodates eighty students, a special laboratory for seniors that will accommodate forty students, a lecture room with a capacity of one hundred and fifty seats, and nine other rooms, all appropriated to instruction and research in chemistry.

The State chemical laboratory for the official analysis of fertilizers is connected with this department.

X. Agriculture.—The agricultural experiment station established in connection with the Institute, where experiments and scientific investigation relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professors in the field where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

The farm contains 304 acres.

XI. Botany.—The department of Botany occupies the western half of the third floor of Agricultural Hall. The rooms in use include a lecture room having seats for sixty-four students, a general laboratory accommodating forty-five students, a smaller laboratory for bacteriology and pathology accommodating twenty students, two small laboratories for professors and advanced students, two offices, a dark room, and store room. The general laboratory is supplied with microscopes, glassware, and the general equipment of apparatus and materials necessary for gross and microscopic work in plant morphology. The equipment for work in plant physiology and pathology has been very materially increased by the installation of much new

apparatus needed for quantitative work in these subjects. These additions include autoclaves, sterilizers, incubator, drying oven, automatic water still, constant temperature baths, and ovens, Kjeldahl nitrogen determination apparatus, distilling and extraction apparatus, and many smaller pieces. These accessions to the equipment provide facilities for accurate work, under controlled conditions, in the chemical phases of plant physiology and for cultural studies in bacteriology and plant pathology and permit expansion and development of the courses offered in these subjects to a degree commensurate with their importance.

The greenhouse of the department has a floor space 30 x 110 feet, with an adjoining laboratory room 30 x 30 feet. It is used for experimental work in plant pathology and plant physiology. The facilities provided are sufficient to permit the growth of ample material for class use in these subjects as well as for the investigation of special problems by the staff.

The botanic garden contains a fairly representative collection of the native trees and shrubs of the state, and it is planned to make a collection of native medicinal plants. A portion of the garden will also be used as an outdoor experimental plat for the growing of materials employed in the work of instruction or in research.

XII. Pharmacy.—The laboratory of this department occupies the first and second floors of the annex to the chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations. The equipment for the laboratory includes a Laurent Polariscope, a Pulfrich refractometer, a vacuum distilling and drying apparatus, consisting of ½ horse power air pump, vacuum chamber, condenser, and Bruhl receiver for fractional distillation under diminished pressure, a three-horse power electric motor, a complete outfit for organic combustion work, and three chemical balances.

On the third floor is located the lecture room, storeroom, and drug mill room.

The new pharmaceutical laboratory on the basement floor of the pharmaceutical building is fitted with steam and has a full equipment for research work in pharmaceutical chemistry.

The students work in the laboratory with the professor from five to eight hours, six days in a week.

XIII. Horticulture.—A well-lighted and heated one-story brick building adjoins the greenhouses. It affords space for about 40 students at one time for practical work in grafting, seed germination, seed testing, transplanting, grading, packing, spray mixing, etc. It contains also a complete equipment for instruction in canning. The two greenhouses, 20 x 80 feet are modern in

construction. They contain a varied collection of the leading bedding and decorative plants, and afford facilities for practical instruction in plant propagation, the forcing of vegetables and cut flowers, and greenhouse management. Hot beds and cold frames of cement construction are also at hand. Instructors also make use of the experimental orchards, vineyard, garden, and ornamental plantings on the grounds of the department for practical instruction. Accurate experiments in the culture of various fruits and vegetables adapted to the state are constantly in progress. The departmental library embracing many of the standard works, magazines, bulletins and other equipment are accessible to advanced students under the usual regulations.

XIV. Entomology, Zoology.—The department for teaching these subjects is located on the first floor of Comer Hall. A combined lecture and laboratory room provides accommodation for 70 men at a lecture or 25 in laboratory work. It is well equipped with apparatus for microscopic and dissection work, and to supplement this, charts, models and preserved specimens of invertebrate animals are used.

In addition the course in Entomology has at hand in the station laboratory, adjoining the class room, a valuable and growing collection of insects especially of the economic species of Alabama. In connection with the range of greenhouses there is also a large workroom for experimental and demonstrational work with insecticides and an insectary 16 x 40 feet within which the study of insect problems may be conducted at any time under controllable conditions. This room is also used in connection with the college apiary to demonstrate equipment and apparatus as used in modern beekeeping, a part of the course in Entomology. The farm, orchards, vineyards and truck gardens afford a convenient opportunity for the observation, study and control of such economic pests as may occur therein. The student in Entomology is made familiar with several types of hand and power spraying and dusting apparatus, also spraying accessories which are recognized as essential in successful agriculture.

A reference library, containing general and standard works upon entomology and zoology and publications of the government and State experiment station is accessible to students.

XV. Animal Husbandry.—The animal husbandry farm contains about 260 acres; upon this farm is a dairy barn which accommodates eighteen cows, and a beef cattle shed. The students visit the barns and sheds with the instructors and are thus afforded an opportunity to study the various breeds of live stock and to do stock judging work. In addition to the pure

breeds of cattle and swine upon the farm, there is always graded and scrub animals which are used in experimental work in feeding, breeding, etc. All of this stock is used in instructional work.

ACADEMIC WORK.

XVI. History.—All advanced work in history is conducted by the laboratory method. This plan has been successfully employed in the junior, the senior, and the graduate classes. A large and well-lighted room has been set apart for this work in the new library building, where all the resources of the rapidly growing library are easily accessible. This room is equipped with maps, diagrams, charts and suitable tables and chairs. The library is a depository for all government publications. These and other books on American history, with which it is well supplied, offer abundant material for research work in the history of our country. The publications collected by the experiment station constitute valuable material for study in industrial history.

XVII. Physics.—The physical laboratory occupies two rooms one of these being permanently darkened for experimental work in light. It is equipped with numerous standard instruments of precision, such as verniers, micrometers, cathetometers, an horizontal comparator, a Kater's revision pendulum, balances, etc., and a quantity of minor apparatus. Recently there have been added a concave grating spectrograph, a large induction coil of 12-inch spark, and other apparatus of value.

XVIII. Military Tactics.—Instruction in this department is given in conformity with the Act of Congress. Students receive the benefit of regular military drill, and in addition, the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties. The department is supplied with cadet rifles and accoutrements for the corps.

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

XIX. Physiology and Veterinary Science.—The veterinary department occupies a separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, thoroughly equipped laboratories for work in bacteriology, milk and meat inspection, and with museum containing skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

There is a separate dissecting room with cement floor and north roof light, constructed especially for this department. This laboratory is used by the professor and students each afternoon for three months.

BUILDINGS.

The Main Building is 160 x 71 feet, and contains forty-five rooms. It contains lecture rooms, administration offices, physical laboratory, museum, armory, etc.

LANGDON HALL.

This is a two-story building 90 x 50 feet. The second story is the audience hall, used for commencement and other public occasions.

POWER HOUSE AND SHOPS.

The first story of Langdon Hall is appropriated to the laboratory of first year wood work in mechanic arts.

The machine shop, forge shop, foundry, and boilers are installed each in separate buildings. A handsome building, two-stories in height, pressed brick and stone trimmings, has been constructed for occupation by the power plant on the first floor and by the pattern making department on the second floor. The dynamo laboratory occupies a separate building.

A commodious boiler house has been built. It is of fire-proof construction and is supplied with track and cars for handling coal from the bin to the boiler. Scales are provided for keeping accurate account of the coal consumed.

BROUN ENGINEERING HALL.

The alterations and additions to the William LeRoy Broun Engineering Hall were completed and the building occupied in September, 1910. The finished structure is 250 feet long, 50 to 90 feet deep, and three and four stories in height, enclosing a floor area of 43,500 square feet. In construction this building is practically fire proof and in exterior design conforms in general to the other buildings on the campus. The walls are laid up in selected red brick, with limestone and terra cotta trimmings.

Offices, lecture rooms, and laboratories for the departments of mechanical, electrical, mining and civil engineering, machine design and drawing, are located within this building, and all the interior accommodations are especially arranged to facilitate the special work of each department.

This building was designed and superintended by the department of architecture.

CHEMICAL LABORATORY.

The Chemical Laboratory is a two-story structure, 40 x 60 feet, with a rear projection, 35 x 60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and extra terra cotta ornamentations.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building containing rooms and laboratories for the department of pharmacy.

The chemical laboratory for the agricultural experiment station occupies a building 60 x 26 feet, and is appropriated exclusively for chemical investigation and research.

SMITH HALL.

The Otis D. Smith Dining Hall, constructed of stone and pressed brick, is two stories in height, and one hundred and forty feet in length. It will accommodate three hundred in the dining hall, and forty in the dormitory above. The style is semi-colonial.

CARNEGIE LIBRARY.

The library building is a handsome structure of classical outline, monumental in its general effect.

AGRICULTURAL BUILDING.

A handsome and commodious building is occupied by the departments of (1) agronomy, (2) horticulture, (3) botany, (4) entomology, and (5) animal husbandry, together with a separate set of buildings for practical work in each of these departments. It is the general opinion that there is no superior, if equal, group of buildings for agricultural purposes in the South. The building is three stories in height and is constructed of pressed brick with stone trimmings.

ALUMNI GYMNASIUM.

The central unit of the Gymnasium presented to the College by the Alumni was dedicated February 22nd, 1916. It is an attractive three-story structure, 110 x 60 feet, built of brick and stone. The first floor contains the dressing rooms and showers for the athletic teams, the students' lockers and showers being located on the second floor. The main Gymnasium hall is on the third floor.

It is planned to complete the building at an early date.

REQUIREMENTS FOR ADMISSION

APPLICATION.

All applicants for entrance to any department of the College should make application to the Registrar as early as possible before the opening of the session (September 12, 1917). Those who desire to be admitted by certificate should make application as soon as possible after their graduation from the High School. To all applicants a blank will be furnished which they are expected to fill out and file with the Registrar in advance of entrance.

All applicants for admission must present testimonials of good moral character, and those who come from other colleges must bring certificates of honorable discharge or furnish other testimonials of good moral character.

Entrance examinations will begin on Monday, September 10th. These examinations will be required of all students entering college for the first time, except those who bring certificates from accredited high schools or preparatory schools or from reputable colleges or universities.

REGISTRATION.

Students upon their arrival in Auburn should report promptly to the President.

All students are required to register on the first day of the session and on the opening day after the Christmas vacation. Registration at a later date involves additional administration work to the College and seriously affects the work of the student. An additional fee of $2.00 will be charged for registration after September 15th and January 2nd. No exception will be made to this regulation.

All students, whether applicants for regular or irregular courses, are required to report for classification to the Chairman of the Committee on Entrance Examinations who will give them cards of admission to the classes to which they are assigned.

ADMISSION TO THE FRESHMAN CLASS.

To enter the freshman class the applicant must be not less than fifteen years of age.

For unconditional admission to any bachelor's course, or to the Veterinary College, a student will be required to present fourteen entrance units.

A unit is defined as a high school or preparatory course of five periods of forty or forty-five minutes each, weekly, throughout the academic year of nine months. In science courses, two laboratory periods are counted as the equivalent of one

recitation period. Credits of less than one unit may be granted for courses that do not run full time. No more than four units will be given for one year's work in the high school.

Students who wish to enter the regular courses and are deficient in entrance requirements may enter and be classified as conditioned students, provided their deficiencies do not exceed two units.

For entrance to any of the special courses that do not lead to degrees, applicants must give evidence of satisfactory preparation for pursuing the work as outlined in the catalogue. In accordance with the requirements of the American Conference of Pharmaceutical Faculties, for entrance to the two-year course in pharmacy leading to the degree of Graduate in Pharmacy, at least two years of high school work are required. Fourteen entrance units are required for admission to the three-year course in pharmacy leading to the degree of Pharmaceutical Chemist.

For entrance to the two-year special course in architecture no examination is required, but the applicant must be not less than twenty-one years of age and have had a satisfactory experience in the office of a practicing architect. He must show by drawings that he possesses a working knowledge of the "Orders" and satisfy the department that his preparation in other lines has been adequate to enable him to carry the work with success.

Of the fourteen units required for admission in full standing to the freshman class, seven and a half are prescribed as follows:—

Mathematics 3½ units:
- High School Arithmetic.
- Algebra, complete.
- Plane and Solid Geometry.

English 3 units:
- High School Grammar.
- Rhetoric and Composition.
- History of American or English Literature.
- Classics.

High School History of the United States 1 unit.

ENTRANCE SUBJECTS.

Credit for admission will be given for any high school subject properly taught.

Algebra	1½ units	Rhetoric and Composition	1½ units
Advanced Arithmetic	½ unit		
Plane Geometry	1 unit	History of American or English Literature	1 unit
Solid Geometry	½ unit		
Trigonometry	½ unit	Advanced U. S. History	1 unit
High School Grammar	½ unit		

Ancient History	1 unit	Physiology	½ to 1 unit
Mediaeval and Modern History	1 unit	Biology	½ to 1 unit
English History	1 unit	Physics	½ to 1 unit
Pedagogy	½ unit	Chemistry	½ to 2 units
Psychology	½ unit	Botany	½ to 1 unit
French	1 to 2 units	Civil Government	½ to 1 unit
German	1 to 2 units	Shop Work	½ to 2 units
Spanish	1 to 2 units	Mechanical Drawing	½ to 2 units
Latin Grammar	1 unit	Freehand Drawing	½ to 1 unit
Caesar	1 unit	Music	½ to 3 units
Cicero	1 unit	Bookkeeping	½ to 1 unit
Virgil	1 unit	Stenography and Typewriting	½ to 1 unit
Greek	1 to 2 units	Domestic Science	½ to 2 units
Commercial Geography	½ unit		
Physical Geography	½ unit		
Agriculture	½ to 2 units		
Zoology	½ to 1 unit		

ADMISSION BY CERTIFICATE.

Students presenting official statements from the schools listed below will be given entrance credit for all work completed. Those having 14 units will be admitted to full standing in the freshman class. Those having 12 units will be classed as conditioned freshmen, and the remaining 2 units must be removed by the beginning of their junior year. Not more than four units will be given for any one year's school work.

All students are strongly advised to complete the full course given in their schools before applying for admission to college.

CERTIFICATE SCHOOLS.

1. State Normal Schools.
2. District Agricultural Schools and County High Schools.
3. The following city, denominational and private schools in Alabama:

Alabama City High School, Alabama City—J. D. Bradley
Albany High School, Albany—R. W. Cowart
Alexander City High School, Alexander City—J. M. Pearson
Andalusia High School, Andalusia—L. E. Brown
Anniston High School, Anniston—D. R. Murphey
Green University School, Athens—W. K. Green
Bay Minette High School, Bay Minette—S. M. Tharpe
Bessemer High School, Bessemer—A. A. Persons
Central High School, Birmingham—C. A. Brown
University High School, Birmingham—J. J. White
High School, Boaz—J. C. McAuley
Snead Seminary, Boaz—L. F. Corley
Brewton High School, Brewton—W. L. Porter
High School, Camp Hill—J. E. Middlebrooks
Industrial Institute, Camp Hill—L. Ward

Carrolton High School, Carrolton.....O. G. Meyers
High School, Citronelle.....B. H. Johnston
High School, Collinsville.....H. G. Tiller
Cordova High School, Cordova.....G. E. Hill
High School, Cuba.....J. M. Davis
Decatur High School, Decatur.....J. M. Collier
Demopolis High School, Demoplis.....K. G. Hoover
Dothan High School, Dothan.....P. W. Hodges
High School, Elba.....J. F. Scofield
High School, Ensley.....L. F. Banks
Eufaula High School, Eufaula.....H. L. Upshaw
Eutaw High School, Eutaw.....A. F. Jackson
High School, Florence.....W. B. Harrison
Gadsden High School, Gadsden.....W. C. Griggs
Geneva High School, Geneva.....J. E. Cheatham
Georgiana High School, Georgiana.....P. B. Pepper
High School, Gordo.....R. R. Rockett
Greenville High School, Greenville.....C. B. Gamble
Haleyville High School, Haleyville.....L. L. James
Goodrich School, Huntsville.....J. C. Goodrich
Huntsville High School, Huntsville.....R. C. Johnston
LaFayette High School, LaFayette.....F. T. Appleby
High School, Lanette.....W. L. Leatherwood
Linden High School, Linden.....A. F. Riser
High School, Livingston.....R. K. Hood
Luverne High School, Luverne.....A. C. Reagan
High School, Madison.....T. G. Riddle
Mobile High School, Mobile.....S. S. Murphy
University Military School, Mobile.....J. T. Wright
Sidney Lanier High School, Montgomery.....C. L. Floyd
Barnes' School, Montgomery.....E. R. Barnes
Edgar's School for Boys, Montgomery.....R. B. Edgar
University School, Montgomery.....J. M. Starke
Baptist Collegiate Institute, Newton.....A. W. Tate
High School, Opelika.....S. O. White
Opp High School, Opp.....P. A. McDaniel
High School, Ozark.....E. T. Laney
High School, Pine Apple.....C. H. Newson
Roanoke High School, Roanoke.....L. L. Vann
High School, Samson.....W. B. Spear
High School, Selma.....A. F. Harman
High School, Sheffield.....W. P. Johnson
Slocomb High School, Slocomb.....E. C. Palmer
High School, Stevenson.....N. H. Price
High School, Sulligent.....W. V. Luckie
Talladega High School, Talladega.....D. A. McNeill
Thomasville High School, Thomasville.....H. M. Morrow

Thorsby Institute, Thorsby.....John Savage
Unity-Chilton Baptist High School, Thorsby.....J. A. Pool
High School, Troy.....Jno. R. McLure
High School, Tuscaloosa.....J. W. Foster
Tuscumbia High School, Tuscumbia.....J. F. Collins
Tuskegee High School, Tuskegee.....R. E. Thompson
Union Springs High School, Union Springs.....E. S. Pugh
High School, Uniontown.....E. Kilpatrick

4. Schools in other States which are accredited to institutions of equal rank with the Alabama Polytechnic Institute.

ADVANCED STANDING.

Advanced standing in any subject is not given on preparatory school credits, and can be obtained only by an examination conducted by the professor of that subject.

Advanced standing is given for work done in other colleges of similar rank, and for work done by graduates of the State Normal Schools at Florence, Jacksonville, Livingston and Troy, of Marion Institute, of Highland Home College, St. Bernard College, of Spring Hill College and the Alabama Presbyterian College, of Anniston.

ADMISSION OF YOUNG WOMEN.

Young women of mature mind and character, who are at least seventeen years of age, will be admitted. Upon the approval of the faculty, applicants may be admitted at an age less than seventeen years if a resident of Auburn will act as guardian.

The only conditions imposed will be that they engage in earnest study and attend the exercises regularly. They will board in town with private families, and will attend college only at the hours of their exercises.

NUMBER OF EXERCISES REQUIRED.

All students are required to have *not less than fifteen* recitations per week, or the equivalent, in addition to the exercises in laboratory work, drawing and military drill. These additional exercises occupy not less than twelve hours per week, and in all, give twenty-seven to thirty hours per week required in college exercises.

Students shall not be permitted to take more than *five hours* of extra work without special permission of the faculty.

SPECIAL AND IRREGULAR STUDENTS.

Those students who are not able to meet the regular entrance requirements may be admitted to special courses in agriculture, architecture, engineering, chemistry, pharmacy, etc., and will be classified as special or irregular students, provided they are

prepared to do satisfactory work in the subjects which they desire to take.

The privilege of taking irregular courses will be granted only to those students who are of age or to those whom for special reasons the faculty may grant permission. Students who are not of age will not be permitted to enter a special or irregular course without the written permission of parent or guardian.

A student to whom this privilege has been granted will be assigned to some member of the faculty who will act as his adviser in regard to his work. The professor in charge of a department will decide whether a special student is prepared for admission to his class.

Those students who are candidates for a degree, but who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies.

REMOVING CONDITIONS.

At the beginning of each term examinations will be given to those students who wish to remove entrance conditions.

CHANGES IN COURSE.

Special and irregular students may be transferred to any regular course by presenting satisfactory entrance requirements and by standing satisfactory examinations on all the work which they have not taken in that regular course.

Students who change from one regular course to another will be required to make up satisfactorily to the heads of the departments concerned all the work in the new course that they have not had.

Permission to change from one course to another will not be granted within two weeks of any term or mid-term examination.

ADMISSION FROM OTHER COLLEGES.

Students coming from another college of similar rank will be assigned to the class to which they would belong in the institution which they have left, and will be required to make up only such back work in the course to which they are assigned as is necessary in order to carry on the regular studies of their class.

COURSES OF INSTRUCTION.

The courses of study include the physical, chemical and natural sciences, with their applications; agronomy, botany, animal husbandry, horticulture, mechanics, astronomy, mathematics, drawing, civil, electrical, mechanical and mining engi-

neering; architecture; physiology, and veterinary science; pharmacy; English, French, German, Spanish and Latin languages; history, political economy; mental and moral sciences; education.

The studies are arranged in regular courses so as to offer liberal and practical education as a preparation for the active pursuits of life.

There are eleven degree courses for undergraduates, leading to the degree of Bachelor of Science (B. S.) each requiring four years for its completion:

I. Course in Civil Engineering.
II. Course in Electrical Engineering.
III. Course in Mechanical Engineering.
IV. Course in Mining Engineering.
V. Course in Architecture.
VI. Course in Architectural Engineering.
VII. Course in Chemistry and Metallurgy.
VIII. Course in Agriculture.
IX. Course in Pharmacy.
X. Course in Chemical Engineering.
XI. General Course.
XII. Four-Year Course in Veterinary Medicine (D. V. M.)
XIII. Three-Year Course in Pharmacy (Ph. C.)
XIV. Two-Year Course in Pharmacy (Ph. G.)
XV. Two-Year Course in Mechanic Arts.
XVI. Two-Year Course in Agriculture.
XVII. Two-Year Course in Applied Electricity.
XVIII. Course for Road Foremen and Inspectors.
XIX. One-Year Course in Wireless Telegraphy.
XX. Two-Year Course in Mining.
XXI. Two-Year Course in Architecture.

Special Course in Agriculture.—Young men over twenty-one years of age who desire to study agriculture will be permitted without examination to enter classes in agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied. They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus in one year acquire valuable practical knowledge of scientific agriculture.

Course I. includes the principles and applications of the sciences that directly relate to civil engineering, and is adapted to those who expect to enter that profession.

Course II. includes, besides the general principles and applications of the sciences, a special course in the applications of

students' drawings, are kept in alphabetical arrangement in a case of drawers.

This department is equipped with an outfit for making blue prints, consisting of two sun printing frames 18 x 24 inches and 30 x 42 inches, each mounted on a car and track and suitable conveniences for washing and drying the prints.

All students in the lower classes are required to take drawing, a study which tends to discipline the mind, as well as to train the eye and hand to accuracy of observation and execution. Four large well-lighted drawing rooms which will accommodate (at one period) two hundred and fifty students, are provided with tables, lock boxes, etc. The drawing rooms have been equipped with one hundred and fifty new drawing tables of the most modern pattern.

VIII. Architecture.—The department of architecture is provided with four well lighted rooms in the Main Building. The drafting room is open from 8:00 A. M. to 10:00 P. M., and each student has his own table to which he may come at any time, and a steel locker for materials; members of all classes are together in this room, and the younger men find inspiration in the work of the older ones. The studio for freehand drawing and water color painting is furnished with adjustable tables, and a good collection of models and plaster casts of sculpture and architectural details.

The architectural library is conveniently located with respect to other rooms of the department, and the books, journals and drawings are freely accessible to students during working hours; under proper restrictions books may also be taken out for home use. The equipment of the lecture room includes a lantern and a carefully selected collection of slides. Quarters for clay modeling are fitted out in Broun Hall.

For advanced work in construction the department of architecture has at its disposal the resources of the various engineering laboratories. In the civil engineering testing laboratory the student investigates the properties of materials, such as cement, stone, brick and steel; in the mechanical laboratory he becomes acquainted with the processes involved in the heating and ventilation of buildings, and the operation of steam and gas engines; in the electrical laboratory he gains a knowledge of dynamo electric machinery, and methods of wiring and illumination of buildings.

On file in the office of the department is a growing collection of working drawings and specifications contributed by practicing architects. A practically permanent display of rendered drawings is maintained on the walls, student problems in design being hung as completed for purposes of inspection and criticism.

COLLEGE OF AGRICULTURAL SCIENCES.

IX. Practical Chemistry.—The chemical apparatus recently purchased for the chemical laboratory consists of a full supply of the most improved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to the first class laboratories, there have been imported a new and improved Schmidt and Heinsch's polariscope, ten short-arm balances of latest pattern, Bunsen's spectroscope, Abbe refractometer, and other instruments for delicate and accurate work.

The investigations that are undertaken in this laboratory by scientific experts in connection with the work of the agricultural experiment station, are of special value to advanced students, and afford them unusual opportunities to learn the methods of scientific research.

The building contains a large general laboratory that accommodates eighty students, a special laboratory for seniors that will accommodate forty students, a lecture room with a capacity of one hundred and fifty seats, and nine other rooms, all appropriated to instruction and research in chemistry.

The State chemical laboratory for the official analysis of fertilizers is connected with this department.

X. Agriculture.—The agricultural experiment station established in connection with the Institute, where experiments and scientific investigation relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professors in the field where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

The farm contains 304 acres.

XI. Botany.—The department of Botany occupies the western half of the third floor of Agricultural Hall. The rooms in use include a lecture room having seats for sixty-four students, a general laboratory accommodating forty-five students, a smaller laboratory for bacteriology and pathology accommodating twenty students, two small laboratories for professors and advanced students, two offices, a dark room, and store room. The general laboratory is supplied with microscopes, glassware, and the general equipment of apparatus and materials necessary for gross and microscopic work in plant morphology. The equipment for work in plant physiology and pathology has been very materially increased by the installation of much new

apparatus needed for quantitative work in these subjects. These additions include autoclaves, sterilizers, incubator, drying oven, automatic water still, constant temperature baths, and ovens, Kjeldahl nitrogen determination apparatus, distilling and extraction apparatus, and many smaller pieces. These accessions to the equipment provide facilities for accurate work, under controlled conditions, in the chemical phases of plant physiology and for cultural studies in bacteriology and plant pathology and permit expansion and development of the courses offered in these subjects to a degree commensurate with their importance.

The greenhouse of the department has a floor space 30 x 110 feet, with an adjoining laboratory room 30 x 30 feet. It is used for experimental work in plant pathology and plant physiology. The facilities provided are sufficient to permit the growth of ample material for class use in these subjects as well as for the investigation of special problems by the staff.

The botanic garden contains a fairly representative collection of the native trees and shrubs of the state, and it is planned to make a collection of native medicinal plants. A portion of the garden will also be used as an outdoor experimental plat for the growing of materials employed in the work of instruction or in research.

XII. Pharmacy.—The laboratory of this department occupies the first and second floors of the annex to the chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations. The equipment for the laboratory includes a Laurent Polariscope, a Pulfrich refractometer, a vacuum distilling and drying apparatus, consisting of ½ horse power air pump, vacuum chamber, condenser, and Bruhl receiver for fractional distillation under diminished pressure, a three-horse power electric motor, a complete outfit for organic combustion work, and three chemical balances.

On the third floor is located the lecture room, storeroom, and drug mill room.

The new pharmaceutical laboratory on the basement floor of the pharmaceutical building is fitted with steam and has a full equipment for research work in pharmaceutical chemistry.

The students work in the laboratory with the professor from five to eight hours, six days in a week.

XIII. Horticulture.—A well-lighted and heated one-story brick building adjoins the greenhouses. It affords space for about 40 students at one time for practical work in grafting, seed germination, seed testing, transplanting, grading, packing, spray mixing, etc. It contains also a complete equipment for instruction in canning. The two greenhouses, 20 x 80 feet are modern in

construction. They contain a varied collection of the leading bedding and decorative plants, and afford facilities for practical instruction in plant propagation, the forcing of vegetables and cut flowers, and greenhouse management. Hot beds and cold frames of cement construction are also at hand. Instructors also make use of the experimental orchards, vineyard, garden, and ornamental plantings on the grounds of the department for practical instruction. Accurate experiments in the culture of various fruits and vegetables adapted to the state are constantly in progress. The departmental library embracing many of the standard works, magazines, bulletins and other equipment are accessible to advanced students under the usual regulations.

XIV. Entomology, Zoology.—The department for teaching these subjects is located on the first floor of Comer Hall. A combined lecture and laboratory room provides accommodation for 70 men at a lecture or 25 in laboratory work. It is well equipped with apparatus for microscopic and dissection work, and to supplement this, charts, models and preserved specimens of invertebrate animals are used.

In addition the course in Entomology has at hand in the station laboratory, adjoining the class room, a valuable and growing collection of insects especially of the economic species of Alabama. In connection with the range of greenhouses there is also a large workroom for experimental and demonstrational work with insecticides and an insectary 16 x 40 feet within which the study of insect problems may be conducted at any time under controllable conditions. This room is also used in connection with the college apiary to demonstrate equipment and apparatus as used in modern beekeeping, a part of the course in Entomology. The farm, orchards, vineyards and truck gardens afford a convenient opportunity for the observation, study and control of such economic pests as may occur therein. The student in Entomology is made familiar with several types of hand and power spraying and dusting apparatus, also spraying accessories which are recognized as essential in successful agriculture.

A reference library, containing general and standard works upon entomology and zoology and publications of the government and State experiment station is accessible to students.

XV. Animal Husbandry.—The animal husbandry farm contains about 260 acres; upon this farm is a dairy barn which accommodates eighteen cows, and a beef cattle shed. The students visit the barns and sheds with the instructors and are thus afforded an opportunity to study the various breeds of live stock and to do stock judging work. In addition to the pure

breeds of cattle and swine upon the farm, there is always graded and scrub animals which are used in experimental work in feeding, breeding, etc. All of this stock is used in instructional work.

ACADEMIC WORK.

XVI. History.—All advanced work in history is conducted by the laboratory method. This plan has been successfully employed in the junior, the senior, and the graduate classes. A large and well-lighted room has been set apart for this work in the new library building, where all the resources of the rapidly growing library are easily accessible. This room is equipped with maps, diagrams, charts and suitable tables and chairs. The library is a depository for all government publications. These and other books on American history, with which it is well supplied, offer abundant material for research work in the history of our country. The publications collected by the experiment station constitute valuable material for study in industrial history.

XVII. Physics.—The physical laboratory occupies two rooms one of these being permanently darkened for experimental work in light. It is equipped with numerous standard instruments of precision, such as verniers, micrometers, cathetometers, an horizontal comparator, a Kater's revision pendulum, balances, etc., and a quantity of minor apparatus. Recently there have been added a concave grating spectrograph, a large induction coil of 12-inch spark, and other apparatus of value.

XVIII. Military Tactics.—Instruction in this department is given in conformity with the Act of Congress. Students receive the benefit of regular military drill, and in addition, the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties. The department is supplied with cadet rifles and accoutrements for the corps.

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

XIX. Physiology and Veterinary Science.—The veterinary department occupies a separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, thoroughly equipped laboratories for work in bacteriology, milk and meat inspection, and with museum containing skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

There is a separate dissecting room with cement floor and north roof light, constructed especially for this department. This laboratory is used by the professor and students each afternoon for three months.

BUILDINGS.

The Main Building is 160 x 71 feet, and contains forty-five rooms. It contains lecture rooms, administration offices, physical laboratory, museum, armory, etc.

LANGDON HALL.

This is a two-story building 90 x 50 feet. The second story is the audience hall, used for commencement and other public occasions.

POWER HOUSE AND SHOPS.

The first story of Langdon Hall is appropriated to the laboratory of first year wood work in mechanic arts.

The machine shop, forge shop, foundry, and boilers are installed each in separate buildings. A handsome building, two-stories in height, pressed brick and stone trimmings, has been constructed for occupation by the power plant on the first floor and by the pattern making department on the second floor. The dynamo laboratory occupies a separate building.

A commodious boiler house has been built. It is of fire-proof construction and is supplied with track and cars for handling coal from the bin to the boiler. Scales are provided for keeping accurate account of the coal consumed.

BROUN ENGINEERING HALL.

The alterations and additions to the William LeRoy Broun Engineering Hall were completed and the building occupied in September, 1910. The finished structure is 250 feet long, 50 to 90 feet deep, and three and four stories in height, enclosing a floor area of 43,500 square feet. In construction this building is practically fire proof and in exterior design conforms in general to the other buildings on the campus. The walls are laid up in selected red brick, with limestone and terra cotta trimmings.

Offices, lecture rooms, and laboratories for the departments of mechanical, electrical, mining and civil engineering, machine design and drawing, are located within this building, and all the interior accommodations are especially arranged to facilitate the special work of each department.

This building was designed and superintended by the department of architecture.

CHEMICAL LABORATORY.

The Chemical Laboratory is a two-story structure, 40 x 60 feet, with a rear projection, 35 x 60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and extra terra cotta ornamentations.

ANNEX TO CHEMICAL LABORATORY.

This is a three-story brick building containing rooms and laboratories for the department of pharmacy.

The chemical laboratory for the agricultural experiment station occupies a building 60 x 26 feet, and is appropriated exclusively for chemical investigation and research.

SMITH HALL.

The Otis D. Smith Dining Hall, constructed of stone and pressed brick, is two stories in height, and one hundred and forty feet in length. It will accommodate three hundred in the dining hall, and forty in the dormitory above. The style is semi-colonial.

CARNEGIE LIBRARY.

The library building is a handsome structure of classical outline, monumental in its general effect.

AGRICULTURAL BUILDING.

A handsome and commodious building is occupied by the departments of (1) agronomy, (2) horticulture, (3) botany, (4) entomology, and (5) animal husbandry, together with a separate set of buildings for practical work in each of these departments. It is the general opinion that there is no superior, if equal, group of buildings for agricultural purposes in the South. The building is three stories in height and is constructed of pressed brick with stone trimmings.

ALUMNI GYMNASIUM.

The central unit of the Gymnasium presented to the College by the Alumni was dedicated February 22nd, 1916. It is an attractive three-story structure, 110 x 60 feet, built of brick and stone. The first floor contains the dressing rooms and showers for the athletic teams, the students' lockers and showers being located on the second floor. The main Gymnasium hall is on the third floor.

It is planned to complete the building at an early date.

REQUIREMENTS FOR ADMISSION

APPLICATION.

All applicants for entrance to any department of the College should make application to the Registrar as early as possible before the opening of the session (September 12, 1917). Those who desire to be admitted by certificate should make application as soon as possible after their graduation from the High School. To all applicants a blank will be furnished which they are expected to fill out and file with the Registrar in advance of entrance.

All applicants for admission must present testimonials of good moral character, and those who come from other colleges must bring certificates of honorable discharge or furnish other testimonials of good moral character.

Entrance examinations will begin on Monday, September 10th. These examinations will be required of all students entering college for the first time, except those who bring certificates from accredited high schools or preparatory schools or from reputable colleges or universities.

REGISTRATION.

Students upon their arrival in Auburn should report promptly to the President.

All students are required to register on the first day of the session and on the opening day after the Christmas vacation. Registration at a later date involves additional administration work to the College and seriously affects the work of the student. An additional fee of $2.00 will be charged for registration after September 15th and January 2nd. No exception will be made to this regulation.

All students, whether applicants for regular or irregular courses, are required to report for classification to the Chairman of the Committee on Entrance Examinations who will give them cards of admission to the classes to which they are assigned.

ADMISSION TO THE FRESHMAN CLASS.

To enter the freshman class the applicant must be not less than fifteen years of age.

For unconditional admission to any bachelor's course, or to the Veterinary College, a student will be required to present fourteen entrance units.

A unit is defined as a high school or preparatory course of five periods of forty or forty-five minutes each, weekly, throughout the academic year of nine months. In science courses, two laboratory periods are counted as the equivalent of one

recitation period. Credits of less than one unit may be granted for courses that do not run full time. No more than four units will be given for one year's work in the high school.

Students who wish to enter the regular courses and are deficient in entrance requirements may enter and be classified as conditioned students, provided their deficiencies do not exceed two units.

For entrance to any of the special courses that do not lead to degrees, applicants must give evidence of satisfactory preparation for pursuing the work as outlined in the catalogue. In accordance with the requirements of the American Conference of Pharmaceutical Faculties, for entrance to the two-year course in pharmacy leading to the degree of Graduate in Pharmacy, at least two years of high school work are required. Fourteen entrance units are required for admission to the three-year course in pharmacy leading to the degree of Pharmaceutical Chemist.

For entrance to the two-year special course in architecture no examination is required, but the applicant must be not less than twenty-one years of age and have had a satisfactory experience in the office of a practicing architect. He must show by drawings that he possesses a working knowledge of the "Orders" and satisfy the department that his preparation in other lines has been adequate to enable him to carry the work with success.

Of the fourteen units required for admission in full standing to the freshman class, seven and a half are prescribed as follows:—

Mathematics 3½ units:
- High School Arithmetic.
- Algebra, complete.
- Plane and Solid Geometry.

English 3 units:
- High School Grammar.
- Rhetoric and Composition.
- History of American or English Literature.
- Classics.

High School History of the United States 1 unit.

ENTRANCE SUBJECTS.

Credit for admission will be given for any high school subject properly taught.

Algebra	1½ units	Rhetoric and Composition	1½ units
Advanced Arithmetic	½ unit	History of American or English Literature	1 unit
Plane Geometry	1 unit		
Solid Geometry	½ unit		
Trigonometry	½ unit		
High School Grammar	½ unit	Advanced U. S. History	1 unit

Ancient History	1 unit	Physiology	½ to 1 unit
Mediaeval and Modern History	1 unit	Biology	½ to 1 unit
English History	1 unit	Physics	½ to 1 unit
Pedagogy	½ unit	Chemistry	½ to 2 units
Psychology	½ unit	Botany	½ to 1 unit
French	1 to 2 units	Civil Government	½ to 1 unit
German	1 to 2 units	Shop Work	½ to 2 units
Spanish	1 to 2 units	Mechanical Drawing	½ to 2 units
Latin Grammar	1 unit	Freehand Drawing	½ to 1 unit
Caesar	1 unit	Music	½ to 3 units
Cicero	1 unit	Bookkeeping	½ to 1 unit
Virgil	1 unit	Stenography and Typewriting	½ to 1 unit
Greek	1 to 2 units	Domestic Science	½ to 2 units
Commercial Geography	½ unit		
Physical Geography	½ unit		
Agriculture	½ to 2 units		
Zoology	½ to 1 unit		

ADMISSION BY CERTIFICATE.

Students presenting official statements from the schools listed below will be given entrance credit for all work completed. Those having 14 units will be admitted to full standing in the freshman class. Those having 12 units will be classed as conditioned freshmen, and the remaining 2 units must be removed by the beginning of their junior year. Not more than four units will be given for any one year's school work.

All students are strongly advised to complete the full course given in their schools before applying for admission to college.

CERTIFICATE SCHOOLS.

1. State Normal Schools.
2. District Agricultural Schools and County High Schools.
3. The following city, denominational and private schools in Alabama:

Alabama City High School, Alabama City—J. D. Bradley
Albany High School, Albany—R. W. Cowart
Alexander City High School, Alexander City—J. M. Pearson
Andalusia High School, Andalusia—L. E. Brown
Anniston High School, Anniston—D. R. Murphey
Green University School, Athens—W. K. Green
Bay Minette High School, Bay Minette—S. M. Tharpe
Bessemer High School, Bessemer—A. A. Persons
Central High School, Birmingham—C. A. Brown
University High School, Birmingham—J. J. White
High School, Boaz—J. C. McAuley
Snead Seminary, Boaz—L. F. Corley
Brewton High School, Brewton—W. L. Porter
High School, Camp Hill—J. E. Middlebrooks
Industrial Institute, Camp Hill—L. Ward

H. Wk.

Third Term.

English (102b) 3
History (Ac. 201) 2
Latin (Ac. 205) 3
Mathematics (Ac. 402) 5
Chemistry (Agr. 101) 4
Drawing (Eng. 601) 5
Mechanic Arts (Eng. 353) 6
Military Drill (Ac. 600) 3

SOPHOMORE CLASS.

First Term.

Physics (Ac. 504) 3
History (Ac. 202) 2
†Mathematics (Ac. 403) 5
Botany (Agr. 302) 6
English (Ac. 103a) 3
Physiology (Vet. 101) 2
Chemical Lab'y (Agr. 110a) 6
Military Drill (Ac. 600) 3

Second Term.

Physics (Ac. 504) 3
History (Ac. 202) 2
English (Ac. 103c) 3
†Mathematics (Ac. 403) 5
Botany (Agr. 302) 6
Physiology (Vet. 101) 2
Chemical Lab'y (Ac. 110a) 6
Military Drill (Ac. 600) 3

Third Term.

Physics (Ac. 504) 3
English (Ac. 103c) 3
†Mathematics (Ac. 404) 5
Botany (Agr. 307) 6
Physiology (Vet. 101) 2
Chemical Lab'y (Agr. 110a) 6
Military Drill (Ac. 600) 3

†With approval of faculty other work may be substituted.

JUNIOR CLASS.

First Term.

English (Ac. 107) 3
Pharmacy (Agr. 401a) 3
Pharmaceutical Lab'y (Agr. 401b) 8
Chemical Lab'y (Agr 110b) 6
Military Tactics (Ac. 601) 1
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 107) 3
†Pharmacy (Agr. 401a) 3

H. Wk.

Pharmaceutical Laboratory Agr. 401b) 8
Pharmacognosy (Agr. 402) 4
Chemical Lab'y (Agr. 110b) 6
Military Tactics (Ac. 601) 1
Military Drill (Ac. 600) 3

Third Term.

English (Ac. 107) 3
Phar. Chem. (Agr. 406) 3
Pharmacognosy (Agr. 402) 4
Chemical Lab'y (Agr. 110b) 6
Military Tactics (Ac. 602) 1
Military Drill (Ac. 600) 3

†Substitute Phar. Chem. (Agr. 406) latter half term.

SENIOR CLASS.

First Term.

Bacteriology and Bact. Lab'y (Vet. 108) 6
Organic Chem. (Agr. 103a) 2
Pharmacy (Agr. 403a) 3
Adv. Pharmacog. (Agr. 404) 3
Military Science (Ac. 603) 1
Chemical Lab'y (Agr. 110c) 6
Pharmaceutical Laboratory (Agr. 403b) 12

Second Term.

Bacteriology and Bact. Lab'y (Vet. 108) 6
Adv. Pharmacog. (Agr. 404) 4
United States Phar. (Agr. 407) 3
†Pharmacology (Vet. 120) 3
Organic Chem. (Agr. 103a) 2
Pharmacy (Agr. 403a) 3
Military Science (Ac. 604) 1
Chemical Lab'y (Agr. 110c) 6
Alkaloidal Assay (Agr. 403c) 9

Third Term.

United States Phar. (Agr. 407) 3
Pharmacology (Vet. 120) 3
Organic Chem. (Agr. 103a) 2
Pharmacy (Agr. 403a) 3
Prescriptions (Agr. 405) 3
Military Science (Ac. 605) 1
Toxicology (Agr. 110e) 6
Urinalysis (Vet. 117) 3
Prescription Laboratory (Agr. 403d) 6
Pharmaceutical Testing and Drug Anaylsis (Agr. 403e) 6

†Substitute for Bacteriology in latter half term.

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

Freshman Class.

First Term.

	H. Wk.
General Chem. (Agr. 101)	4
Physiology (Vet. 104)	2
English (Ac. 102a)	3
Anatomy and Anat. Lab'y (Vet. 107)	10
Histology (Vet. 108)	5
Stock Judging (Vet. 109)	2
Chemical Lab'y (Agr. 110a)	6
Vet. Science (Vet. 102)	2
Clinics (Vet. 112)	3
Military Drill (Ac. 600)	3

Second Term.

General Chem. (Agr. 101)	4
Physiology (Vet. 104)	2
English (Ac. 102b)	3
Anatomy and Anat. Lab'y Vet. 107)	10
Histology (Vet. 108)	5
Stock Judging (110)	4
Chemical Lab'y (Agr. 110a)	6
Vet. Science (Vet. 102)	2
Clinics (Vet. 112)	3
Military Drill (Ac. 600)	3

Third Term.

General Chem. (Agr. 101)	4
Physiology (Vet. 104)	2
English (Ac. 102b)	3
Stock Judging (111)	2
Anatomy and Anat. Lab'y (Vet. 107)	10
Histology (Vet. 108)	5
Chemical Lab'y (Agr. 110a)	6
Vet. Science (Vet. 102)	2
Clinics (Vet. 112)	3
Military Drill (Ac. 600)	3

Sophomore class.

First Term.

Embryology (Vet. 113)	3
Organic Chem. (Agr. 103b)	3
Anatomy (Vet. 115)	10
Vet. Medicine (Vet. 116)	3
Clinics (Vet. 117)	6
Bacteriology (Vet. 118)	8
Military Drill (Ac. 600)	3

Second Term.

Organic Chem. (Agr. 103b)	3
Anatomy (Vet. 115)	8
Vet. Medicine (Vet. 116)	3
Pharmacy (120)	10
Bacteriology (Vet. 118)	6
Clinics (Vet. 117)	8
Military Drill (Ac. 600)	3

Third Term.

Physiological Chem. (119)	4
Vet. Medicine (Vet. 116)	3
Anatomy (Vet. 115)	8
Pharmacy (120)	10
Bacteriology (Vet. 118)	6
Botany (121)	5
Clinics (Vet. 117)	8
Military Drill (Ac. 600)	3

Junior Class.

First Term.

Surgery (Vet. 122)	4
Obstetrics (Vet. 123)	2
Anatomy (Vet. 124)	8
Vet. Medicine (Vet. 126)	3
Botany (125)	6
Vet. Physiology (Vet. 127)	3
Clinics (Vet. 128)	10

Second Term.

Surgery (Vet. 122)	4
Obstetrics (Vet. 123)	2
Anatomy (Vet. 124)	8
Vet. Medicine (Vet. 126)	4
Vet. Physiology (Vet. 127)	4
Infectious Diseases (Vet. 129)	3
Clinics (Vet. 128)	10

Third Term.

Surgery (Vet. 122)	4
Obstetrics (Vet. 123)	2
Vet. Medicine (Vet. 126)	4
Vet. Physiology (Vet. 127)	3
Infectious Diseases (Vet. 129)	3
Anatomy (Vet. 124)	8
Clinics (Vet. 128)	10

Senior Class.

First Term.

Vet. Medicine (Vet. 130)	3
Therapeutics (Vet. 131)	5
Principles of Breeding (Agr. 808)	2
Surgery (Vet. 135)	2
Meat Inspection (Vet. 138)	3
Pathology (Vet. 137)	7
Clinics (Vet. 136)	8
Thesis (Vet. 143)	4

Second Term.

Therapeutics (Vet. 131)	5
Dairying (Agr. 814)	4
Meat Inspection (Vet. 138)	3
Parasites (Vet. 140)	3
Clinics (Vet. 135)	10
Pathology (Vet. 137)	8
Thesis (Vet. 143)	4

Third Term.

Toxicology (Agr. 110e)	7
Urinalysis (Vet. 117)	3
Milk Inspection (Vet. 139)	5
Surgical Exercises (Vet. 141)	3
Parasites (Vet. 140)	3
Feeds and Feeding (134)	3
Clinics (Vet. 136)	10
Thesis (Vet. 143)	4

DESCRIPTION OF COURSES

ACADEMIC DEPARTMENTS

PSYCHOLOGY AND ECONOMICS.

PROFESSOR THACH.
PROFESSOR RUTLAND.

1. Courses in psychology will be given in the department of education.

2. Economics. The object of this course is to give the student a general view of economics. It includes a study of wealth, value, price, competition, monopolization, production, and distribution; the evolution of industry, and the leading economic questions of today. Collateral reading, oral reports, and occasional written papers are required. *Two hours, second and third terms.*

ENGLISH.

PROFESSOR RUTLAND.
PROFESSOR WHITE.
INSTRUCTOR TAYLOR.
INSTRUCTOR LOVELACE.
ASSISTANT SOWELL.
ASSISTANT NESBITT.

The mastery of one's native language is a pre-requisite to high attainment in any profession. In a technological institute, where only brief courses in foreign language can be pursued by most of the students, this mastery of the native speech becomes, if possible, even more essential to future success than in the classical colleges. This consideration alone would justify courses in English in technological institutions, but when we add to this the great cultural value of the study of language and literature, the wisdom of compulsory courses becomes obvious. The courses in English comprise the study of the theory of composition together with much practice in its application, both in writing and in speaking, a survey of the history of American and English literature, and an intensive study of the greatest periods and writers in English literature.

Requirements in English for admission are set forth on page 26. No student will be classed as regular in any course until he has met these requirements.

The requirements as to thesis and as to proficiency in

English for certificates and diplomas are set forth on pages 33 and 147.

The following courses are offered:

FRESHMAN CLASS.

102. (a) Composition for freshmen. The principles of exposition, narration and description are studied, but special emphasis is given to the different types of exposition. Weekly themes and frequent exercises are required. When practicable, the instructors hold fortnightly conferences with students in order to correct, assist and stimulate them. Textbook to be announced. *Three hours, first term; two hours second and third terms.*

(b) American literature for freshmen. A survey of the history of American literature together with the study of selected masterpieces. The recitations will be devoted chiefly to the discussion of the literature assigned for study, but the students will be required to master a concise history of the subject and to keep notes on both the history and the selections. Text-books to be announced. *Three hours, second and third terms.*

(c) Types of literature. This course is an appreciative study of some of the chief literary types—the essay, the drama, lyric and narrative verse, and the novel. Illustrative readings will be selected for the most part from American literature, but not entirely. *Two hours, first term.*

(d) Public speaking. This course is a study of the principles of public speaking. Attention is given to voice building, bodily expression, and oral interpretation of selected speeches. Those taking the course during first term will substitute it for (c), those taking it in the second or third terms will substitute it for (a). Text-book: Winter's *Principles of Public Speaking. Two hours, half term.*

SOPHOMORE CLASS.

103. (a) Argumentation for sophomores. This course consists of the study of the essentials of argumentation and requires extensive practice in gathering material, note-making, brief-making, analysis and criticism of evidence, and practical debating. Weekly themes in argumentative form and one lengthy argument at the end of the course are required. Text-book: Pattee's *Practical Argumentation. Three hours, first term.*

(b) Debating for sophomores. All sophomores are required to meet at least once fortnightly at some other hour than the regular recitation period for drill in parliamentary law and for practice in actual debating.

(c) English literature for sophomores. This course covers

the whole range of English literature from Anglo-Saxon times to our own, and consists of the interpretive and critical study of selected poetry and prose. The aim is to give the student not only a definite conception of the periods of literature and of the forces in life that found expression in literature, but also an appreciative understanding of the greater writers and productions. The students are required to keep full notes on the lectures as well as on the class study of selections. Text-books to be announced. *Three hours, second and third terms.*

(d) Public speaking. This course may be chosen by sophomores instead of the actual debating required in (b). It is a study of the ends of speech-making and the means of securing effectiveness. Emphasis is placed upon the principles of composition and comprises practical exercises in collecting and organizing material in addition to the study of style and structure of selected speeches and readings. Text-book: Phillips' *Effective Speaking.*

JUNIOR CLASS.

107. In the junior and senior years students pursuing the general course may form a separate section from the rest of the class. This section is required to do a greater amount of reading and written work than the technical students. Juniors may elect one of the following courses, but the department reserves the right to omit a course in case only a very small number elect it.

(a) Nineteenth century literature. The time will be about equally divided between Wordsworth and his contemporaries and the writers of the Victorian period. The course will involve wide reading, discussions of the technique of the writers, their art, growth of mind, general interpretation of life, and their relation to their own time and discussions of the various movements in science, politics, philosophy, and art in their relation to the literature of the period. The work is carried on partly by lectures and partly by class study of representative masterpieces. Students will be required to take notes on both lectures and class discussions, and to write weekly reports or themes. Text-book will be announced. *Three hours, entire session.*

(b) The essay and the novel. The larger part of the first term will be given to the study of the origin and development of the English Essay. Selected essays representing the seventeenth and eighteenth centuries will be read, and much time will be devoted to the essay of the nineteenth century. The rest of the year will be devoted to the history of the novel. Representative novels from the eighteenth century to the present time are studied; and special attention is given to technic, plot and character analysis, relation to other forms

of literature, the writer's conception of his art, and style. Text-book to be announced. *Three hours, entire session.*

(c) Contemporary literature. This course includes a study of recent tendencies in the drama, novel, short story and essay. Magazines such as the Atlantic Monthly, the Nation or the Dial are used as points of departure, but most of the work will consist of extensive assigned readings out of class, together with class-room reports and discussions. Open also to seniors. *Three hours, entire session.*

SENIOR CLASS.

108. The following courses are offered for seniors:

(a) Shakespeare. The development of the English Drama before Shakespeare will be reviewed briefly through assigned reading and lectures and the life of Shakespeare will be included in the matter for final examination, but the class room instruction will be devoted chiefly to a careful study of the plays. During the first few weeks several plays of the different types and representative of the different periods of authorship are given brief treatment. Most of the time, however, is given to the close study of two plays, one comedy, and one tragedy. Text-books to be announced. *Two hours, first term.*

108b. Advanced composition for engineering students. This course is open to both seniors and juniors. The work will consist of themes on technical subjects and quizzes based upon technical reading. Weekly themes of from 1000 to 1500 words are required. There will be individual conferences and class discussions of the papers submitted. The course includes training in condensing and expanding articles, and the making of reports. The second term is given to the production of a weekly technical magazine. The third term is given to the writing, in weekly chapters, of extended themes. The class will be limited to twenty students.

108c. Advanced composition for Agricultural students. A parallel course to 107b.

110. Methods of teaching English. If a sufficient number of students apply to the head of the department, a course in methods of teaching English will be offered, the text-book and hours to be determined later.

GRADUATE STUDENTS.

The following courses have been given to graduate students:

(a) Shakespeare: Hamlet, Othello, Macbeth, Mechant of Venice, As You Like It, Henry IV, Richard III, King John.

(b) Dryden's Poetical Works: Arnold's Dramatic Poesy, Yonge's Essay on Satire, Saintsbury's Dryden, Pope's Poetical Works, Pattison's Satire, Stephen's Pope, Gosse's From Shakespeare to Pope, and Eighteenth Century Literature.

(c) English literature of the eighteenth century: Addison, Pope, Gray, Goldsmith, Burns, Cowper and Burke.

(d) American literature: Longfellow, Lowell, Poe.

(e) The English Essay: Bacon, Addison, Steele, Swift, Johnson, Goldsmith, Macaulay, DeQuincey, Lamb, Carlyle.

(f) Milton's Poetical Works: Life, Pattison, Brooke.

(g) Elizabethan, Jacobean, and Caroline literature; Greene, Jonson, Marlowe, Webster, Beaumont, and Fletcher, Brown, Herrick, Bunyan and others.

(h) English literature, 1832-1894.

(i) Chaucer.

(j) English prose fiction.

For the year 1917-18, one of the following courses may be elected by the graduate class:

Anglo-Saxon: A study of the grammar and phonology of Anglo-Saxon, together with the reading of select prose and verse. The class will probably read a portion of Beowulf.

Chaucer: A study of the life and times of Chaucer, together with the readings and critical study of a large portion of his collected writings.

Prose fiction: A study of the development of English fiction, with special emphasis upon the modern novel.

Shakespeare: A critical study of the dramatist's art.

HISTORY AND LATIN.

PROFESSOR PETRIE.
INSTRUCTOR REYNOLDS.
ASSISTANT ANDREWS.
ASSISTANT SOWELL.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements, and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Instruction is given by text-books, lectures and class discussion, but a constant effort is made to stimulate to wider reading and research in the library. The following courses are offered:

FRESHMAN CLASS.

201. Industrial and constitutional history of the United States: The course consists of lectures and text-book work,

and is somewhat advanced. All students who take it must have previously completed some high school text-book on the history of the United States. Text-books: Hart's Formation of the Union; Wilson's Division and Reunion. *Two hours, entire sesison.*

SOPHOMORE CLASS.

202. History of Modern Europe: Required of all members of the sophomore class. Some previous knowledge of the subject is desirable, but is not necessary. Text-book: Hazen's Europe Since 1815. *Two hours, first and second terms.*

204. A brief course in recent history: Not required of any students, but those who expect to take the general course may take this work. Text-book: Hazen's Europe Since 1815, and current periodicals. *Three times a week, third term.*

SENIOR CLAS.

205. English constitutional history: A course for one year for members of the senior class. Text-book will be announced later.

JUNIOR AND SENIOR CLASSES.

206. Historical laboratory: An opportunity for advanced work in United States history, for those students of the general course who elect it as laboratory work, and for any others who are properly qualified.

The chief object kept in view is training in historical research and in the formation of independent but careful opinions based on the original sources of information, as well as on the standard authorities. Emphasis is laid on the importance of securing proper material for investigation, and every incentive is given to the collection and use of new documents, papers, and letters illustrative of Southern, and especially of Alabama history. The method of work is as follows: Informal lectures are given on important and suggestive points, as: The cause of the Revolution; the Constitutional Convention; the War of 1812; the Missouri Compromise; the Monroe Doctrine; Texas and Mexico; the Compromise of 1850; the Kansas Struggle; the Dred Scott Decision; Secession. After each lecture a general discussion follows, and topics connected with it are assigned to the students with an outline of the points to be investigated. The final results are collected by each student according to his own judgment in his note-book, which is then passed in to the professor for correction and suggestion. Text-book: McDonald's Select Statutes. *Six hours, entire session.*

International Law: Brief courses are offered for all juniors and seniors. See Military Science and Tactics ,pp. 73, 74. *One hour a week for five weeks.*

Military History: A course of five lectures discussing the strategy of the wars in which the United States have been engaged. This is for all juniors. See Military Science and Tactics, p. 73.

GRADUATE COURSE.

207. Graduate students are expected to take part in the junior and senior discussions, and will also meet with the professor for conference about their work. Each year some special field is taken for investigation and discussion. Those who take history as their major study are expected to devote a large part of their time to research upon some topic upon which they can consult the original sources of information.

208. Teachers' course: Conferences every other week with those students who expect to teach history.

LATIN.

The objects kept in view in this department are: An accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives, an appreciation of Latin literature and an intelligent conception of Roman history and civilization, both in themselves and in their effect on the modern world.

A systematic course of instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation. English passages based on a familiar author or illustrative of special constructions are put in Latin, both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class, a course of reading in English is prescribed descriptive of his life, work and times. The historical setting and the literary value of his writings are carefully discussed, and frequent comparisons are made with modern authors.

In the freshman and sophomore classes, the study of the language is the chief point. In the higher classes a broader view is taken. The junior class makes a special study of Roman history and Roman historians. The senior class studies Roman poetry and Roman life.

The following courses are offered with the text-books named:

209. Freshman class: Exercises, Cicero, Sallust, or equivalent. Allen and Greenough's Latin Grammar. *Three hours, first term; four hours, second and third terms.*

210. Sophomore class: Livy, Allen and Greenough's Grammar, Bennett's Latin Composition. *Five hours, entire year.*

211. Junior class: Livy, Tacitus, grammar, Roman History, exercises. Allen and Greenough's Grammar, Botsford's History of Rome. *Three hours, entire year.*

212. Senior Class: Horace, Plautus, Latin literature, grammar. Allen and Greenough's Grammar. *Three hours, entire year.*

213. Pedagogical course: During the spring term a pedagogical course is given in Latin. It is designed chiefly, but not exclusively, for members of the senior class. It includes a discussion of the methods of teaching forms and syntax, as well as concrete illustrations of the way to overcome the difficulties in Caesar and Virgil.

MODERN LANGUAGES.

PROFESSOR WIATT.

ASSISTANT ELIZONDO.

The chief aim in this department is to give the student a thorough and accurate knowledge of the elementary principles of the subjects taught, and to enable him to read with facility the ordinary French and German at sight. To train the ear, acquire a correct pronunciation and some facility in speaking, all recitations are supplemented, as far as practicable, by oral exercises in the languages themselves.

Opportunity for the study of Spanish is given students who elect that language.

FRENCH.

JUNIOR CLASS.

301. (a) A course covering the essentials of grammar and pronunciation to enable the student to begin the reading of simple French prose. This course continues through the first term, three hours a week being given to the study of grammar and one hour to pronunciation and conversation. *Four hours, first term.*

(b) The second term includes a course of reading in simple prose (2 hours a week), and the continuation of grammar with translations of English into French (1 hour a week). *Three hours, second term.*

(c) During the third term the reading of more advanced selections in prose and poetry is begun (2 hours a week), grammar and composition (1 hour a week); and pronunciation and conversation (1 hour a week). *Four hours, third term.*

SENIOR CLASS.

302. (a) A course in reading: Corneille and modern French plays (2 hours a week); laws of grammar and composition

(1 hour a week); pronunciation and conversation (1 hour a week). *Four hours, first term.*

(b) The second term is given to the study of Racine, and the reading of modern French literature (2 hours a week), and to continued study of the structure and syntactical features of the languages in connection with translations into French. *Three hours, second term.*

(c) The third term includes a study of Moliere (1 hour a week); the history of French literature (1 hour a week); more advanced work in grammar and composition (1 hour a week); and pronunciation and conversation (1 hour a week). *Four hours, third term.*

303. Teachers' course: During the spring term the work of the senior class will be so modified or supplemented, as to include a short pedagogical course for students who expect to teach French. This will consist chiefly of elementary work in grammar and syntax, and a study of the best methods of giving instruction in this subject. *Third term, senior year.*

GRADUATE STUDENTS.

304. Graduate course: Offered for students who wish to pursue the study of French beyond the scope to which a two-year course necessarily limits them. In addition to the authors studied in the lecture room, a wide and extensive reading of literature is prescribed.

TEXT-BOOKS.

First year: Frazer and Squair's Shorter French Course; Koren and Chapman's French Reader.

Second year: Corneille, Racine, Moliere, selected modern French plays, Duval's Histoire de la Literature Francaise; Frazer and Squair's French Grammar, French Composition.

GERMAN.

The following regular courses are given:

JUNIOR CLASS.

305. (a) A course embracing the fundamental principles of grammar and the essentials of pronunciation leading to the intelligent reading and translation of simple German texts (3 hours a week), and exercises in pronunciation and conversation (1 hour a week). *Four hours, first term.*

(b) In the second term the reading of simple prose is begun (2 hours a week), and grammar and composition continued (1 hour a week). *Three hours, second term.*

(c) Reading of more difficult selections of prose and poetry is begun and continued throughout the third term (2 hours a week). Grammar and composition continued (1 hour a week), and conversational exercises (1 hour a week). *Four hours, third term.*

SENIOR CLASS.

306. (a) A course of reading in modern German (2 hours a week); structure and syntax of the language with translations into German (1 hour a week); conversation (1 hour a week). *Four hours, first term.*

(b) Schiller (2 hours a week); History of German Literature and composition (1 hour a week). *Three hours, second term.*

(c) German lyrics and ballads (2 hours a week). German literature (1 hour a week), composition and conversation (1 hour a week). *Four hours, third term.*

307. A course for students from the scientific schools, including readings of various scientific subjects, selected to meet the requirements of the class (2 hours a week), grammar and composition (1 hour a week), and conversation (1 hour a week). *Four hours, entire session.*

308. Teachers' Course: During the third term in the senior class of German, the course will be so modified, or supplemented, as to include a short pedagogical course for those students who expect to become teachers of this language. This will consist chiefly of elementary work in grammar and syntax, and a study of the best methods of giving instruction in the subject.

GRADUATE STUDENTS.

309. Advanced course: For those students who wish to pursue the study of German beyond the scope to which a two-year course necessarily limits them. Here, in addition to the authors studied in the lecture room, a wide and extensive reading of authors and literature is prescribed.

TEXT-BOOKS.

First year: Wesselhoeft's German Grammar, Huss's German Reader.

Second Year: Schiller, Lessing, selected modern German plays, German lyrics, Bernhardt's Deutsche Litteraturgeschichte, Harris's German Grammar, German Composition.

SPANISH.

310. A course in Spanish is also given, embracing the fundamentals of the language, consisting of a study of the grammar, readings of modern Spanish selections and exercises in conversation. *Three hours, entire session.*

Texts: Ingraham-Edgren's Brief Spanish Grammar; Turrell's Spanish Reader.

MATHEMATICS.

PROFESSOR CRENSHAW
PROFESSOR MESSICK.
PROFESSOR SHI.
PROFESSOR PATRICK.
INSTRUCTOR STOKES.
INSTRUCTOR DONAHUE.
ASSISTANT FARRIS.
ASSISTANT OWENS.

The courses of instruction offered in this department are designed to give the student that mental discipline and training in logic which will enable him to think and reason logically; as well as a thorough knowledge of the principles and formulas of pure mathematics and their practical applications in the engineering and other scientific professions.

The courses offered in the different classes in this department are as follows:

FRESHMAN CLASS.

401. Plane Trigonometry. *Five hours, first term.*

402. Advanced Algebra. *Five hours, second and third terms.*

SOPHOMORE CLASS.

403. Analytic Geometry. *Five hours, first and second terms.*

404. Introductory Course in Calculus. *Five hours, third term.*

JUNIOR CLASS.

405. Calculus. *Five hours, entire year.*

GRADUATE STUDENTS.

407. Differential Equations. *Two hours, entire year.*

408. Methods of teaching mathematics. The department offers a course designed for teachers of elementary mathematics, or for those who expect to make this their profession. The elementary branches of mathematics will be reviewed and methods of teaching briefly discussed, keeping constantly in view the co-ordination of the lower branches with the higher. The course will include also a brief *resume* of the history of the elementary subjects, a critical examination of the extant text-books; and finally, an outline of a course of study in advanced mathematics to be pursued by the teacher.

409. Projective Geometry. This course which aims to present the elements of the subject, will be offered to seniors and graduate students in architecture and engineering, and to those properly equipped who wish to pursue the subject of mathematics. *Hours to be arranged, third term.*

TEXT-BOOKS.

Palmer and Leigh's Trigonometry; Fite's College Algebra; Fine and Thompson's Coordinate Geometry; Smith and Granville's Elementary Analysis; Granville's Calculus; Leib's Problems in the Calculus; Cohen's Differential Equations.

PHYSICS.

PROFESSOR DUNSTAN.
ASSOCIATE PROFESSOR WOOTEN.
INSTRUCTOR SPANN.
ASSISTANT FARRIS.

The complete course in physics extends over two years and it is designed to give as far as possible an adequate and correct idea of the method of physical science, and to lay the foundation for subsequent advanced work if the student desires to pursue the work further or intends to engage in any of the great engineering professions of which physics forms so important a basis.

Two of the courses offered are given in the sophomore year, one being a lecture course and the other a course in laboratory work. The lectures are illustrated by lecture table experiments, and the students are required to work numerous problems and exercises.

SOPHOMORE CLASS.

504. A lecture course in general physics required of all students who are candidates for the degree of Bachelor of Science. For entrance upon this course the student should have had one year's work in elementary physics and a working knowledge of plane trigonometry. The subjects treated are varied from year to year, but they consist in the main of mechanics of rigid bodies, heat, light, sound, electricity, etc. Written exercises will be required each week. *Three hours, entire session.*

502. This is a laboratory course which is required of all students in engineering. Non-engineering students may select it as an optional subject. The laboratory experiments are carefully selected and they comprise work in general mensuration with instruments of precision, heat, light, sound and electricity. The student is required to write a full report of each experiment as he completes it, and the form of compiling data and expressing methods and results is given great weight in determining average grades. The work in the laboratory will be arranged so as to co-ordinate as far as possible with the work treated in the lecture course. Entrance upon the laboratory course requires the student shall have had at least one year of elementary physics. *Two hours, entire session.*

SENIOR CLASS.

505. This lecture course is more advanced than the one given to the sophomores and it presupposes a knowledge of the calculus, both differential and integral. The subjects treated are varied from year to year. They are treated thoroughly and rigorously, and the student is encouraged to learn to use the language of mathematics in expressing his ideas. Attention is paid to the history of the development of the various subjects treated. Written exercises are required each week. *Two hours, first and second terms.*

506. Astronomy. A brief course in descriptive astronomy. *Two hours, third term.*

GRADUATE STUDENTS.

508. Mechanics. A course in mechanics is offered in which the methods of vector analysis are applied to the derivations of various principles and in the solutions of various problems. The course presupposes a thorough working knowledge of analytical geometry and the calculus. *Two hours, entire session.*

MILITARY SCIENCE AND TACTICS.

CAPTAIN FRANK W. ROWELL, U. S. A.

The military department is maintained under the Federal Law of July 2nd, 1862, and the Act of Congress, June 3rd, 1916.

Under the latter law a regimental unit of the Senior Division of the Reserve Officers' Training Corps is organized under the administration of the War Department and the supervision of the Commanding General, Eastern Department.

An officer of the Regular Army is detailed as Professor of Military Science and Tactics. He is assisted by three sergeants detailed from the army.

The Professor of Military Science and Tactics is, by the appointment of college authorities, the Commandant of Cadets.

Under the Act of June 3rd, 1916, the College is provided with arms and equipments, and a uniform is furnished by the Government for issue, by the College, to each member of the Reserve Officers' Training Corps. The uniform remains the property of the Government, and is for the use of the student only while he remains a member of the Training Corps. Insignia of rank are purchased by the cadet, at a small cost.

The course of instruction is a graded course, covering four years. When any member of the Senior Division of the Reserve Officers' Training Corps has completed two academic years in that division, and has been selected for further training by the president of the institution and by its professor of

military science and tactics, and has agreed in writing to continue in the Reserve Officers' Training Corps for the remainder of his course in the institution, devoting five hours per week to the military training prescribed by the Secretary of War, and has agreed in writing to pursue the courses in camp training prescribed by the S cretary of War, he may be furnished, at the expense of the United States, with commutation of subsistence at such rate, not exceeding the cost of the garrison ration prescribed for the army, as may be fixed by the Secretary of War, during the remainder of his service in the Reserve Officers' Corps.

The course in camp training prescribed by the Secretary of War consists of two summer camps, not to exceed six weeks in any one year. Transportation to and from the camps and subsistence during such travel and while at the camp is furnished at the expense of the Government, as far as appropriations will permit.

No obligation to perform military service after graduation is incurred by the student.

The object of the military training in the Reserve Officers' Training Corps is to educate college men in the duties of a subaltern officer in the Army. After graduation he is as free as any other citizen.

The following uniform of standard cadet grey cloth has been prescribed for dress: coat and trousers as worn in the fatigue uniform at the United States Military Academy; cap, dark blue cloth with mohair braid band and brass cap ornament; shoes, tan leather. This uniform is purchased by the student.

The following uniform has been prescribed for summer wear, and to be worn at such times as may be ordered by the Commandant: trousers, grey dress; shirt, olive drab woolen cloth of approved shade and quality; cap, same as dress; shoes, same as dress; tie, black string tie of medium length; waist belt, woven web of olive drab color. The cost of shirt, tie and belt is about $3.50.

The entire body of students is organized as a regiment of two battalions and a band. The officers are selected as far as practicable from among the seniors and juniors who are pursuing the Advanced Course of the Reserve Officers' Training Corps. Selection is based upon an examination for each grade from corporal to captain inclusive. Moral fitness, including demerits and standing in studies, will be considered.

A band composed of cadets furnishes appropriate music for parades and other ceremonies and on special occasions. Members of the Reserve Officers' Training Corps are authorized

to serve in the band so long as their regular course of instruction is not interfered with.

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant General of the Army, and to the Adjutant General of their respective states.

On graduation from the military department a student may make application for appointment as an officer in the Officers' Reserve Corps and when he has been appointed in that Corps he may make application for temporary commission as an additional second lieutenant in the Regular Army for a period of six months with full allowances and with pay of $100.00 per month. Both applications are made voluntarily. The graduates of the Reserve Officers Training Corps are entitled to make application but there is no obligation to do so.

600. Basic Course:

FRESHMAN CLASS.

1. Military art.
   Three hours a week (counting 14 units).
   (*a*) Practical. Weight 10.
   Physical drill (Manual of Physical Training—Koehler); Infantry drill (U. S. Infantry Drill Regulations), to include the School of the Soldier, Squad and Company, close and extended order. Preliminary instruction sighting position and aiming drills, gallery practice, nomenclature and care of rifle and equipment.
   (*b*) Theoretical. Weight 4.
   Theory of target practice, individual and collective (use of landscape targets made up by U. S. Military Disciplinary Barracks, Fort Leavenworth, Kans.); military organization (Tables of Organization); map reading; service of security; personal hygiene.
2. Military art.
   Three hours a week (counting 14 units).
   (*a*) Practical. Weight 10.
   Physical drill (Manual of Physical Training—Koehler); Infantry drill (U. S. Infantry Drill Regulations), to include School of Battalion, special attention devoted to fire direction and control; ceremonies; manuals (Part V, Infantry Drill Regulations); bayonet combat; intrenchments (584-595, Infantry Drill Regulations); first-aid instruction; range and gallery practice.
   (*b*) Theoretical. Weight 4.
   Lectures, general military policy as shown by mili-

tary history of United States and military obligations of citizenship; service of information; combat (to be illustrated by small tactical exercises); United States Infantry Drill Regulations, to include School of Company; camp sanitation for small commands.

SOPHOMORE CLASS.

3. Military art.
Three hours a week (counting 14 units).
(*a*) Practical. Weight 10.
The same as course 2 (*a*). Combat firing, is practicable, but collective firing should be attempted in indoor ranges by devices now in vogue at United States Disciplinary Barracks.
(*b*) Theoretical. Weight 4.
United States Infantry Drill Regulations, to include School of Battalion and Combat (350-622); Small Arms Firing Regulations; lectures as in (*b*) course 2; map reading; camp sanitation and camping expedients.

4. Military art.
Three hours a week (counting 14 units).
(a) Practical. Weight 10.
The same as course 2 (*a*); signaling; semaphore and flag; first-aid. Work with sand table by constructing to scale intrenchments, field works, obstacles, bridges, etc. Comparison of ground forms (constructed to scale) with terrain as represented on map; range practice.
(*b*) Theoretical. Weight 4.
Lectures, military history (recent); service of information and security (illustrated by small tactical problems in patrolling, advance guards, rear guards, flank guards, trench and mine warfare, orders, messages, and camping expedients); marches and camps (Field Service Regulations and Infantry Drill Regulations).

ADVANCED COURSE.

(Elective for those who have completed the basic course).

JUNIOR CLASS.

601-602 Advanced Course:—

5. Military art.
Five hours a week (counting 24 units).
(*a*) Practical. Weight 13.
Duties consistent with rank as cadet officers or noncommissioned officers in connection with the

practical work and exercises laid down for the unit or units. Military sketching.

(*b*) Theoretical. Weight 11.

Minor tactics; field orders (studies in minor tactics, United States School of the Line); map maneuvers. Weight 8.

Company administration, general principles (papers and returns). Weight 1.

Military history. Weight 2. Professor Petrie.

6. Military art.

Five hours a week (counting 24 units).

(a) Practical. Weight 13.

Same as (*a*) course 5. Military sketching.

(*b*) Theoretical. Weight 11.

Minor tactics (continued); map maneuvers. Weight 8.

Elements of international law. Weight 2. Professor Petrie.

Property accountability; method of obtaining supplies and equipment (Army Regulations). Weight 1.

SENIOR CLASS

603-605. Advanced course:

7. Military art.

Five hours a week (counting 24 units).

(*a*) Practical. Weight 13.

Duties consistent with rank as cadet officers or noncommissioned officers in connection with the practical work and exercises scheduled for the unit or units. Military sketching.

(*b*) Theoretical. Weight 11.

Tactical problems, small forces, all arms combined; map maneuvers; court-martial proceedings (Manual for Courts-martial).

International relations of America from discovery to present day; gradual growth of principles of international law embodied in American diplomacy, legislation, and treaties. Professor Petrie.

Lectures: Psychology of war and kindred subjects.

General principles of strategy only, planned to show the intimate relationship between the statesman and the soldier (not to exceed 5 lectures).

8. Military art.

Five hours a week (counting 24 units).

(*a*) Practical. Weight 13.

Same as course 7 (*a*).

(*b*) Theoretical. Weight 11.

Tactical problems (continued); map maneuvers. Rifle in war.

Lectures on military history and policy.

EDUCATION.

PROFESSOR JUDD.
PROFESSOR BLASINGAME.

The Department of Education was established by order of the Board of Trustees, June, 1915. This action was taken:

1. Because a large number of the graduates of the Institute each year enter the field of education as teachers and principals.
2. Because of the increasing demand in the State of Alabama for professionally trained teachers.
3. Because of the new emphasis on rural life and education, creating a demand for teachers and principals acquainted with the rural sciences and industries in the district agricultural and the county high schools.
4. Because of the increasing number of positions in the city schools requiring teachers especially trained in the sciences.
5. Because of the increasing demand for men of academic and professional training for the position of county superintendent.

For several years the Institute has offered courses in special methods in some of its departments. It has worked in co-operation with the district agricultural and county high schools through furnishing a visitor and inspector, whose reports are regularly filed with the State Department of Education.

PURPOSE.

The Institute purposes, through its various Colleges and the Department of Education, to meet as liberally as possible the demands from the several divisions of the field of education as indicated above. It does so with a consciousness of obligation in two directions:

1. To the State—whose creature it is, from which it draws support, and to which it owes the most faithful, efficient, and complete service.
2. To its students—who elect to pursue here courses in academic and scientific subjects, necessary as a fundamental preparation for teaching.

The State Department of Education, by recent ruling, will grant to certain graduates of the leading colleges of Alabama first grade and life certificates. The requirements for these certificates are that graduates must have pursued courses in education totaling a minimum of nine session hours.

The courses offered for the fulfillment of these requirements are:

Education 2. Principles of Education. ***Three hours, the year.***

Education 5. Secondary Education. *Three hours, first term.*

Education 6. Principles and Practice of Teaching. *Three hours, second and third terms.*

Education 7. Educational Sociology. *Three hours, first term.*

Education 8. Rural Educational Practice. *Three hours, second term.*

Education 9. School Supervision. *Three hours, third term.*

COURSES OF INSTRUCTION.

Education 1. Elementary Psychology and Educational Psychology: Text-books, lectures, and assigned readings. Elective for both academic and professional students of junior standing.

The aim of this course is twofold:

1. To introduce the student to the subject-matter and methods of general psychology.

2. To present the psychological principles which underlie the process of learning.

For present year this course is open only to students who have taken, or are taking, Education 2, 5, and 6, and with the consent of the professor in charge. *Three hours, the year.*

Education 2. Principles of Education: A consideration of the aims, principles, and processes of education. Lectures, readings, and discussions. Elective for both academic and professional students of junior and senior standing. Required of applicants for recommendation for the State Teacher's Certificate.

This course will present a scientific study of education from the psychological, biological, and sociological points of view. The considerations will be the nature of the educable being and the character of his environment, adjustment to which and control over which constitute the chief aim of education. *Three hours, the year.* Sec. I. *M., Tu., Th.* 8-9; Sec. II. *M., W., F.* 9-10.

Education 3. A study of Adolescence: Devoted to a consideration of the characteristics and needs of the high school age. Elective for both academic and professional students of junior and senior standing. Text-books and lectures.

The objects of the course are:

1. To discover as far as possible the natural tendencies and characteristics of the period of youth.

2. To determine how they can best be brought to a successful issue in maturity, through the proper adaptation of the organization and administration of the high school to the physical, mental, and social needs of boy and girl life.

Attention is called to Education 4, which constitutes the second half-year's work. *Three hours, first half-year.*

Education 4. Sociology: An elementary study of society and social problems. Elective for both academic and professional students of junior and senior standing. Text-books, lectures, and discussions.

The object of this course is to acquaint the student with the nature, laws, and objects of society, as conditioning the content and method of education.

Attention is called to Education 3, which constitutes the first half-year's work. *Three hours, second half-year.*

Education 5. Secondary Education: The American High School, its organization, management, and administration. Text-books, assigned reading, reports, and discussions. Elective for both juniors and seniors in Education. Required of applicants for recommendation for the State Teacher's Certificate.

A critical examination of typical high schools, emphasizing the function, course of study, social needs, equipment, training and qualification of teachers, and similar matters of administration. Especial emphasis will be placed upon the high school curriculum, including the best modern methods, equipment and material pertaining to the teaching of the different high school subjects. A study of the special problems confronting Alabama with respect to the establishment and development of public high schools. Throughout the entire course, the relation of the high school to the community will be stressed. *Three hours, first term.*

Education 6. Principles and Practice of Teaching: A study of the principles of school management, discipline, and teaching. Text-books, lectures, observations, reports, and discussions. Elective for juniors and seniors in Education. Required of applicants for recommendation for the State Teacher's Certificate.

Observations in local city and rural schools, planning of lessons, criticism of recitation work. Illustrative lessons in the several subjects of the course of study. The work of the course will consider the practical problems of the classroom in their relation to the life of the community. *Three hours, second and third terms.*

Education 7. Educational Sociology. Foundations of the School as a Social Institution: Lectures, readings, and discussions. Elective for both academic and professional students of junior and senior standing.

The social and industrial character of present-day country life, and the district, village, and town school as its chief institution will be the concerns of this course. The chief problems of the home, the farm, and the associational life of the community will be discussed. The country school evolved

in the endeavor to offer solutions to these problems will be defined. *Three hours, first term.*

Education 8. Rural Educational Practice: A survey and an evaluation of the practice of typical town and country schools. Assigned readings, investigations, reports, and discussions. Elective for seniors in Education, and for teachers of experience.

It will be the purpose of this course to acquaint the student with the best practice found in our town and country schools. A survey of the work of some of the better district, village, and town schools of the United States will be made. Special features will be noted and an attempt made to evaluate them in terms of the environs of and the demands upon one's own school. The teacher's relation to the larger phases of school development, and the daily problems arising in and about the school will receive attention. Bulletins from the United States Bureau of Education and from the various State departments of education, and other special publications will be read. *Three hours, second term.*

Education 9. School Supervision: The principles and the administration of school supervision. Text-books, lectures, observations, and conferences. Elective for seniors in Education and for teachers of experience.

The principal topics considered in this course will be:

1. Supervisory officers—superintendent and special supervisors.

2. General plan of supervision—training of teachers in service, schoolroom visits, aids to teachers.

3. Observation and criticism of the process of instruction—standards of the recitation, application of these standards as modified by local conditions, preparation of the recitation by teachers and pupils, conference with teachers, demonstration teaching by supervisor. *Three hours, third term.*

Education 10. School Curricula: An examination and an evaluation of social materials, and the principles in the construction of courses of study. Assigned readings, investigations, and reports. Elective for advanced students in Education.

The content and organization of courses of study will constitute the considerations of this course. An effort will be made to formulate the chief sociological demands of country life and to make out courses of study suitable to typical social and industrial situations. Concrete contributions of normal schools and schools of education in the leading colleges and universities and of specialists in education will be studied. Reports on first-hand investigations, and specimen curricula will be required. *Two hours, the year.*

Education 11. Library Methods: Organization, administration, and equipment: Lectures and practical work in the library. Open to seniors in Education.

The aim of this course is to train intending teachers in the organization, care, and administration of a school library. Particular regard will be had for the selection of books suitable to school and community needs, and for the adjustment of the reading hours to the occupations and customs of the neighborhood. *One hour, the year.*

Courses in Education for which hours have not been assigned, will be scheduled at the opening of the fall session. Persons interested in the Department of Education are requested to write for the special bulletin.

METHODS IN TEACHING SPECIAL STUDENTS.

Courses in special methods in teaching the various subjects designed for teachers in the schools of Alabama, and for intending teachers, will be offered upon application to the head of the department. The instruction is given by teachers of extensive experience, who are familiar with school conditions in the State.

Courses are offered in the following subjects:

English, History, Latin, French, German, Mathematics, Physics, Manual Training, Physical Geography, Drawing and Descriptive Geometry, Chemistry, Agriculture, Physiology and Hygeine, and Horticulture. Descriptions of these courses will be found in their respective departments.

SUMMER SESSION.

The Summer Session for 1917 will open on June fourteenth and continue to July twenty-fifth.

COURSES OF STUDY.

For College Credit: Those subjects most in demand will be offered every summer. Others will be offered once in alternate summers, still others, once in four summers. The aim will be to give opportunity to any student attending four summer sessions to pursue any study offered during the college year.

For Entrance Credit: Courses in high school history, English, Latin, mathematics, and others for which there may be sufficient demand.

Teachers' Courses: Special courses for teachers in high school physics, history, English, geography, physiology, drawing, mathematics.

The Newer High School Subjects: Agriculture, horticulture, animal husbandry, household economics, and manual training. Two aims will dominate these courses: First to present the

subject-matter with a view of giving the teachers a thorough mastery of it; second, to indicate to them what portions of these subjects they may undertake to teach in the high school and how to select or improvise the necessary equipment.

Professional Courses: Psychology, educational psychology, school management and methods, supervision, administration, and rural sociology.

Elementary Methods: A course in primary and grammar grade methods, library methods, public school music, plays and games for children, writing and drawing, the common branches.

PURPOSE.

It will be the purpose through these courses to meet the needs of:

1. The various types and classes of teachers in the State of elementary, high school, and college level.
2. College students who wish by means of summer study to shorten their term in college or to make up back studies.
3. Prospective college students, who may be irregular in their studies, and who wish to remove entrance conditions.

FACULTY.

The Summer Session faculty will comprise members of the regular college staff, specialists in education from other institutions, and practical supervisors and superintendents.

EXPENSES.

The cost of attendance upon the summer session is moderate. Board and lodging for the session may be secured for $20 to $30. The registration fee is $3.00. Tuition is free to all pursuing courses for teachers. A small fee is charged for laboratory courses, for college credit and entrance courses, and for certain courses in athletics.

FULL ANNOUNCEMENT.

The Summer School Bulletin announces courses and members of the faculty, and gives all needed information. Persons interested may obtain a copy of the bulletin upon request.

COLLEGE OF ENGINEERING, MINES AND ARCHITECTURE

CIVIL ENGINEERING.

PROFESSOR MITCHAM.
ASSISTANT PROFESSOR STELZENMULLER.
ASSISTANT SMITH.

FRESHMAN CLASS.

102. Plane surveying and levelling: Instruction is given in the use, care, and adjustment of instruments; standardizing tapes; determination of true meridian and magnetic declination; U. S. Public Land Surveys; methods of retracing old lines; farm surveys by various methods; plotting and calculating areas; dividing lands; surveying and mapping existing roads and streets; laying out townsites and establishing permanent monuments for same; differential levelling; profile levelling; construction of profiles and establishing grades; cross-section levelling; calculation of volumes of excavation and embankment; topographic surveying; mapping; terracing; staking out and giving grades for sewers, ditches, and drains; staking out buildings, etc. *Lectures and recitations, three hours, field practice two hours, second and third terms.*

SOPHOMORE CLASS.

103. Higher surveying: Required of civil engineering students. Instruction will cover hydrographic surveying; mining surveying; city surveying; geodetic surveying and projection of maps. *Lectures and recitations two hours, field practice two hours, third term.*

104. Railway surveying: Required of students pursuing courses in civil and mining engineering. Instruction will cover preliminary surveys; theory of simple, reversed, and compound curves; transition curves; railway grades; vertical curves; construction surveys; calculation of quantities involved in railway construction. *Three hours recitations and two hours practice, first term.*

106. Railway surveying: A course involving additional study of the railroad spirals; problems in location; fixing grades with reference to economy in construction and operation; approximate estimates of quantities from profiles; cross-sectioning and calculating of excavation and embankment; calculation of overhaul; borrow pits; planning, and staking out

railway structures. *Two hours recitations and two hours field and office practice, second term.*

JUNIOR CLASS.

107. Roads and pavements: A course of lectures and recitations covering economic principles involved in road improvement; analysis of resistance to traction; location, grades, and drainage of new roads; relocation and improvement of existing roads; construction of earth, gravel, macadam, concrete, brick, and bituminous roads, with study of properties of the various materials used in road construction, the methods employed in testing them, and the best specifications for constructing roads with the several materials; street plans of cities and towns; width and grades of streets; curbs and gutters; construction of various kinds of street pavements; storm drainage systems for cities; and construction of sidewalks. *Five hours, first term.*

108. Road materials laboratory: The study and testing of various materials used in the construction of roads and pavements. The purpose of the course is to give the student an opportunity of becoming familiar with the physical properties, relative merits, and methods of testing the various materials. *Four hours, second term.*

109. Road and street improvement: A practical field and office course in making surveys, plans, and estimates for road and street improvements. *Six hours, third term.*

111. Graphic Statics: A course of lectures and drafting room exercises covering fundamental principles of equilibrium; composition and resolution of forces; the equilibrium polygon; graphical determination of stresses in trusses and framed structures, bending moment and shear in beams; center of gravity of given sections; moment of inertia. *Lectures two hours, drafting three hours, third term.*

112. Structural drafting: The purpose of this course is to acquaint the student with the details of structural steel work, to train him in the neat and accurate execution of drawings, and to teach him in a practical way to solve some of the simpler problems in structural mechanics. *Six hours, first and second terms.*

SENIOR CLASS.

113. Theory of structures: The purpose of this course is to teach the fundamental theories underlying the design of bridges, roofs, and other framed structures of metal and timber. The discussions cover determination of outer and inner forces acting on the structure; concentrated live load systems; design of beams, plate girders, simple trusses, bridge trusses with secondary web systems, lateral and portal bracing, transverse

bents, viaduct towers, cantilever bridges, three-hinged arches. *Five hours, first term.*

114. Structural design: This is a drafting room course in the practice of bridge and structural design, and is the complement of course 113. Complete designs are worked out for a number of structures. *Nine hours, first and third terms.*

115. Railroad engineering: The discussions cover the inception, promotion, and organization of railroad projects, organization and construction; the duties of the engineer; alignment and grades; rails and rail fastenings; cross ties; ballast and roadbed; culverts; bridges, and minor structures; turnouts; sidetracks and yards; terminals; elevation of outer rail; signalling; the locomotive and its work; the locomotive and grade problems; railroad expenditures; relation of operating expenses to number of trains; effect of rise and fall, distance, and curvature to train mile costs; railroad location, construction, and betterment surveys. *Three hours, first term.*

116. Theoretical hydraulics: The discussions cover fluid pressures; equilibrium of floating bodies; fundamental principles of hydro-mechanics; methods of measuring the flow of water; Pitot tube; Venturi meter; orifices; tubes; sluices; weirs; nozzles; fire hose; flow in open channels, sewers, conduits, etc.; flow in pipes; dynamic action of flowing water; impulse wheels; turbines of various types; centrifugal pumps. *Five hours, second term.*

117. Practical hydraulics: This course is the complement of course 116, and its purpose is to bring the student into close touch with practical hydraulics. The work includes the determination of coefficients of orifices, tubes, and nozzles, determining loss of head in pipes and fire hose; measurement of water by weirs and meters; testing meters and pumps; gauging streams with current meter; visits of inspection to hydro-electric power plants under construction and in operation and reports on same. *Three hours, third term.*

118. Concrete and masonry construction: Discussions cover mathematical theories underlying the design of reinforced concrete beams, columns, slabs and arches; cements, limes and mortars; methods of mixing and placing plain and reinforced concrete; classification and properties of building stones; definition and construction of various classes of stone masonry; manufacture of brick; brick work; stone and brick arches; retaining walls; piers and abutments; shallow foundations; coffer dams; crib foundations; pile foundations; pneumatic caissons; the freezing process; cylinder piers. *Three hours, second and third terms.*

119. Sanitary engineering: The discussions cover the history of sanitary science; sanitary measures necessary for the

prevention of zymotic diseases; the engineer's part in the campaign for the prevention of disease; the sources of water supply; its collection, purification, and distribution; sewerage, and sewerage design; sewage disposal; construction of sewers; pumping of sewage; sewage treatment plant; sewage farms; collection and disposal of garbage and rubbish; street cleaning. *Five hours, third term.*

120. Thesis: Each candidate for a degree in civil engineering is required to prepare a thesis upon some engineering subject which he may select. It must be the record of original investigation of some engineering subject or an original design of some engineering structure or project. The applicant for a degree shall file a written announcement of his subject with the professor of civil engineering not later than October 1st of his senior year; and the thesis shall be completed and submitted for approval not later than May 1st. During the first term the candidate shall devote not less than four hours a week to reading and collecting data for his thesis; during the second term he shall devote not less than nine hours a week and during the third term until May 1st, not less than three hours a week to work on the thesis. He shall submit on Monday morning of each week a written statement of the time he has devoted to thesis work during the preceding week.

The student is also required to prepare and hand in one report or paper during first term and one during second term on subject of thesis or some allied subject approved by the professor.

SUMMER CAMP AND SCHOOL OF SURVEYING.

105. Practical work in plane and higher surveying supplementing the instruction given in courses 102 and 103: This work is given at the summer camp immediately after commencement, between freshman and sophomore years. The purpose of this course is to give the student uninterrupted practice in the solution of practical problems in surveying similar to those which he will meet early in his career as an engineer; and the course is in line with the policy of the institute to combine theory and practice in all its branches of technical instruction. Students in this course are required to make notes of all the work done by the party to which he is assigned and to compute and plot all surveys made by his party. The parties will be made as small as the conditions to the work will permit so as to give each student the greatest possible amount of practice with the instruments. This course is required of all students who are candidates for graduation in civil, or mining engineering, and requires *forty-eight hours per week for four weeks.*

110. Practical work in railway, highway, and hydrographic surveying: This course is also given in the summer camp, and

is required of all students who are candidates for graduation in civil or mining engineering, and will be taken between sophomore and junior years. The work includes the preliminary location and construction, surveys for a short line railroad, (about 2 miles), with maps, profiles, and estimates for same; all surveys, maps, profiles and estimates for a short line of highway, (about 2 miles); surveys for a dam and lake formed thereby; also gauging of stream flow with current meter. The time required for this course is *four weeks, forty-eight hours per week.*

The Institute furnishes tents, cots, camp stools, and all equipment of mess tents. The student will furnish his own bedding, soap and towels. A charge of $18.00, payable in advance, will be made for each course and will be applied to payment of the expense of the camp.

GRADUATE STUDENTS.

121. Graduate engineering course: This course requires three hours a week to be devoted to recitations and five hours a week to practical work in field or drafting room, throughout the session. The subjects may be varied to fit the needs of the students taking the course, but will be chosen from the following: Reinforced concrete; bridge design; sewerage and water supply; specifications and contracts.

122. Thesis: Graduate students applying for the degree of civil engineer will be required to prepare and present a thesis, the regulations governing thesis work being the same as those prescribed for seniors.

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN.
PROFESSOR HILL.
ASSISTANT PROFESSOR WOOTEN.
INSTRUCTOR SPANN.

JUNIOR CLASS.

201. Elementary theory of electricity and magnetism: A detailed study of the fundamental phenomena and laws of the subject. *Three hours, first term.*

202. Direct current machinery: Lectures and recitations on the principles of design, construction, installation, and operation of direct current generators and motors. This course treats in detail of the selection of machinery for given conditions, performance guarantees, acceptance tests for heating, regulation, efficiencies, etc., parallel running troubles and remedies and repairs. A large number of carefully selected problems are assigned for solution and every effort is made to have

railway structures. *Two hours recitations and two hours field and office practice, second term.*

JUNIOR CLASS.

107. Roads and pavements: A course of lectures and recitations covering economic principles involved in road improvement; analysis of resistance to traction; location, grades, and drainage of new roads; relocation and improvement of existing roads; construction of earth, gravel, macadam, concrete, brick, and bituminous roads, with study of properties of the various materials used in road construction, the methods employed in testing them, and the best specifications for constructing roads with the several materials; street plans of cities and towns; width and grades of streets; curbs and gutters; construction of various kinds of street pavements; storm drainage systems for cities; and construction of sidewalks. *Five hours, first term.*

108. Road materials laboratory: The study and testing of various materials used in the construction of roads and pavements. The purpose of the course is to give the student an opportunity of becoming familiar with the physical properties, relative merits, and methods of testing the various materials. *Four hours, second term.*

109. Road and street improvement: A practical field and office course in making surveys, plans, and estimates for road and street improvements. *Six hours, third term.*

111. Graphic Statics: A course of lectures and drafting room exercises covering fundamental principles of equilibrium; composition and resolution of forces; the equilibrium polygon; graphical determination of stresses in trusses and framed structures, bending moment and shear in beams; center of gravity of given sections; moment of inertia. *Lectures two hours, drafting three hours, third term.*

112. Structural drafting: The purpose of this course is to acquaint the student with the details of structural steel work, to train him in the neat and accurate execution of drawings, and to teach him in a practical way to solve some of the simpler problems in structural mechanics. *Six hours, first and second terms.*

SENIOR CLASS.

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bents, viaduct towers, cantilever bridges, three-hinged arches. *Five hours, first term.*

114. Structural design: This is a drafting room course in the practice of bridge and structural design, and is the complement of course 113. Complete designs are worked out for a number of structures. *Nine hours, first and third terms.*

115. Railroad engineering: The discussions cover the inception, promotion, and organization of railroad projects, organization and construction; the duties of the engineer; alignment and grades; rails and rail fastenings; cross ties; ballast and roadbed; culverts; bridges, and minor structures; turnouts; sidetracks and yards; terminals; elevation of outer rail; signalling; the locomotive and its work; the locomotive and grade problems; railroad expenditures; relation of operating expenses to number of trains; effect of rise and fall, distance, and curvature to train mile costs; railroad location, construction, and betterment surveys. *Three hours, first term.*

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117. Practical hydraulics: This course is the complement of course 116, and its purpose is to bring the student into close touch with practical hydraulics. The work includes the determination of coefficients of orifices, tubes, and nozzles, determining loss of head in pipes and fire hose; measurement of water by weirs and meters; testing meters and pumps; gauging streams with current meter; visits of inspection to hydro-electric power plants under construction and in operation and reports on same. *Three hours, third term.*

118. Concrete and masonry construction: Discussions cover mathematical theories underlying the design of reinforced concrete beams, columns, slabs and arches; cements, limes and mortars; methods of mixing and placing plain and reinforced concrete; classification and properties of building stones; definition and construction of various classes of stone masonry; manufacture of brick; brick work; stone and brick arches; retaining walls; piers and abutments; shallow foundations; coffer dams; crib foundations; pile foundations; pneumatic caissons; the freezing process; cylinder piers. *Three hours, second and third terms.*

119. Sanitary engineering: The discussions cover the history of sanitary science; sanitary measures necessary for the

prevention of zymotic diseases; the engineer's part in the campaign for the prevention of disease; the sources of water supply; its collection, purification, and distribution; sewerage, and sewerage design; sewage disposal; construction of sewers; pumping of sewage; sewage treatment plant; sewage farms; collection and disposal of garbage and rubbish; street cleaning. *Five hours, third term.*

120. Thesis: Each candidate for a degree in civil engineering is required to prepare a thesis upon some engineering subject which he may select. It must be the record of original investigation of some engineering subject or an original design of some engineering structure or project. The applicant for a degree shall file a written announcement of his subject with the professor of civil engineering not later than October 1st of his senior year; and the thesis shall be completed and submitted for approval not later than May 1st. During the first term the candidate shall devote not less than four hours a week to reading and collecting data for his thesis; during the second term he shall devote not less than nine hours a week and during the third term until May 1st, not less than three hours a week to work on the thesis. He shall submit on Monday morning of each week a written statement of the time he has devoted to thesis work during the preceding week.

The student is also required to prepare and hand in one report or paper during first term and one during second term on subject of thesis or some allied subject approved by the professor.

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105. Practical work in plane and higher surveying supplementing the instruction given in courses 102 and 103: This work is given at the summer camp immediately after commencement, between freshman and sophomore years. The purpose of this course is to give the student uninterrupted practice in the solution of practical problems in surveying similar to those which he will meet early in his career as an engineer; and the course is in line with the policy of the institute to combine theory and practice in all its branches of technical instruction. Students in this course are required to make notes of all the work done by the party to which he is assigned and to compute and plot all surveys made by his party. The parties will be made as small as the conditions to the work will permit so as to give each student the greatest possible amount of practice with the instruments. This course is required of all students who are candidates for graduation in civil, or mining engineering, and requires *forty-eight hours per week for four weeks.*

110. Practical work in railway, highway, and hydrographic surveying: This course is also given in the summer camp, and

is required of all students who are candidates for graduation in civil or mining engineering, and will be taken between sophomore and junior years. The work includes the preliminary location and construction, surveys for a short line railroad, (about 2 miles), with maps, profiles, and estimates for same; all surveys, maps, profiles and estimates for a short line of highway, (about 2 miles); surveys for a dam and lake formed thereby; also gauging of stream flow with current meter. The time required for this course is *four weeks, forty-eight hours per week.*

The Institute furnishes tents, cots, camp stools, and all equipment of mess tents. The student will furnish his own bedding, soap and towels. A charge of $18.00, payable in advance, will be made for each course and will be applied to payment of the expense of the camp.

GRADUATE STUDENTS.

121. Graduate engineering course: This course requires three hours a week to be devoted to recitations and five hours a week to practical work in field or drafting room, throughout the session. The subjects may be varied to fit the needs of the students taking the course, but will be chosen from the following: Reinforced concrete; bridge design; sewerage and water supply; specifications and contracts.

122. Thesis: Graduate students applying for the degree of civil engineer will be required to prepare and present a thesis, the regulations governing thesis work being the same as those prescribed for seniors.

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN.
PROFESSOR HILL.
ASSISTANT PROFESSOR WOOTEN.
INSTRUCTOR SPANN.

JUNIOR CLASS.

201. Elementary theory of electricity and magnetism: A detailed study of the fundamental phenomena and laws of the subject. *Three hours, first term.*

202. Direct current machinery: Lectures and recitations on the principles of design, construction, installation, and operation of direct current generators and motors. This course treats in detail of the selection of machinery for given conditions, performance guarantees, acceptance tests for heating, regulation, efficiencies, etc., parallel running troubles and remedies and repairs. A large number of carefully selected problems are assigned for solution and every effort is made to have

the course cover not only the fundamental principles but also the broader engineering problems connected with the choice and use of this class of machinery. *Three hours, second term.*

203. Central station appliances and distribution for lighting and power service by direct currents: This course treats in detail of switch boards and appliances, calculation of circuits of various kinds, arc and incandescent lighting, metering, systems of charging for service, economics of generating plants. *Three hours, third term.*

204. Elementary theory of electricity and magnetism: For non-electrical engineering students. This course is similar to course 201, though not so detailed in treatment. *Two hours, first and second terms.*

204a. The construction and operation of both direct and alternating current machines; tests for efficiency, regulation and heating; the generation and distribution of electric power. In this course, it is intended to cover the application of electricity to the operation of machinery. For non-electrical students. *Two hours, third term.*

205. Electrical measurements and tests: For students in electrical engineering and mechanical engineering. The course consists of lectures and recitations upon the measurements of current, voltage, resistance, capacities, magnetic measurements, stray power, brake tests, heat runs, and related subjects. *One hour, entire session.*

206. Laboratory work: For students in electrical engineering and mechanical engineering. The course consists of galvanometer work, resistance measurements of various kinds, magnetic measurements and various tests. *Four hours, first term.*

207. Laboratory work: For students in electrical engineering and mechanical engineering. The second term is devoted to the operation of direct current motors and dynamos, characteristics of direct current machinery, methods of adjusting, compounding, etc. *Four hours, second term.*

208. Laboratory work: For students in electrical engineering and mechanical engineering. Efficiency tests, location of troubles on machine and line, switch boards and appliances and general experience in the operation of a direct current station, are given. *Four hours, third term.*

SENIOR CLASS.

210. Theory of alternating currents: Lectures, recitations and problems upon the phenomena of alternating current circuits, inductances, etc. The course is introductory to the subject of alternating current machinery, and in order to take it, students must have a fair working knowledge of differential

and integral calculus and vector algebra. *Five hours, first term.*

211. Alternating current machinery: Lectures and recitations upon alternating current generators, calculation of alternator voltage, regulation by various methods, parallel running, transformers, induction motors, single phase commutator motors, synchronous motors, rotaries, etc.; harmonic analysis of wave forms, the expression of the same in Fourier series and calculation of the current produced in various circuits.

The course is somewhat advanced and in order to take it satisfactorily students must have a good knowledge of the mathematical theory of alternating currents. *Five hours, second term.*

212. Transmission lines: Lectures and recitations upon line inductance and capacity, the application of hyperbolic functions to the calculation of the regulation of long transmission lines, effect of harmonics in E. M. F. waves, surges, etc. Stresses in conductors, line construction and related topics. *Five hours, third term.*

213. Laboratory work: Operation of alternating current machinery, determination of data for calculation of alternator regulation, direct determination of regulation, efficiency tests, transformer connections, transformer testing for efficiency and regulation, induction motor testing, circle diagram. Brake tests, single phase induction motors, synchronous motors, V-curves, rotaries, synchronizing, etc. The work during the third term consists chiefly in the determination of data for the student's thesis. *Four hours, entire session.*

214. Electric railway engineering: A detailed study of the subject of street and interurban electric railway service covering train resistance, grades, curves, line and track, car and power plant equipment, both direct and alternating currents, sub-station, single phase equipment, and related topics.

The course consists of recitations and lectures with constant reference to current numbers of various technical journals. *Two hours per week, one term.*

215. Telephone engineering: History and development of telephone types, designs of telephone parts, sub-station equipment, magneto and common battery switch boards, exchange equipment, telephone power plants, over head and under ground circuits, protectors, coin collectors and meters, party lines, private branch exchanges, first and intercommunicating systems, trunking, and toll boards. *Two hours, first and second terms.*

216. Telephone laboratory: Details of telephone constructions, association of parts, assembly of switch board parts, storage batteries, tests for location of faults in cables and lines, capacity and insulation tests, details of common battery and

magneto switch boards, trunking schemes, etc. *Two hours, first and second terms.*

217. Electrical engineering: For senior mechanical engineering students. Direct current motors and generators, street railways, circuits, alternating currents, and alternating current machinery. This course is less detailed than the courses for electrical engineering students, but aims to cover the field in a more generalized manner. *Three hours, first term.*

218. Laboratory work: For seniors in mechanical engineering. This course is given in connection with course 217, and gives practice in the operation and testing of electrical machinery of various kinds. *Four hours, first term.*

219. Contracts and specifications: For seniors in the courses of electrical engineering and mechanical engineering. Lectures and recitations upon engineering specifications and the elements of the laws of contracts. Considerable time is devoted to exercises in writing specifications covering machinery and engineering projects. These specifications are read to the class and the students are required to offer criticism on each set. *Two hours, third term.*

220. Power plant: For students taking the special course in applied electricity. The purpose is to familiarize the student with the operation of engines, pumps, generators, motors, switchboard appliances and boilers. All students in this course are expected to work under the power house engineer. *Four hours, entire session.*

WIRELESS TELEGRAPHY.

LABORATORY ASSISTANT KOMP.

221. In response to a considerable demand it has been decided to offer a special course in wireless telegraphy. The practice work in this subject will be under the charge of a licensed wireless operator. Every effort will be made to offer to students opportunities to become familiar with the setting up, installation, and testing of wireless apparatus, as well as becoming expert in sending and receiving.

The requirements for entrance to this course will be similar to those for entrance upon the two-year course in applied electricity.

Wireless messages are constantly being picked up with the wireless station, these messages coming from ships at sea, and from various wireless stations along the Atlantic Coast.

The course of study is the same as that of the first year in the two-year course in applied electricity, with the exception that four hours of wireless telegraph study and practice will be substituted for four hours power house work.

MECHANICAL ENGINEERING.

PROFESSOR WILMORE.
ASSISTANT PROFESSOR HIXON.
INSTRUCTOR STOKES.
INSTRUCTOR ASKEW.
ASSISTANT DAVIS.
LABORATORY ASSISTANT ROBERTS.
LABORATORY ASSISTANT RUSSELL.

The following courses are offered in this department:

FRESHMAN CLASS.

Students who have credit for a course satisfactorily completed in an accredited high school will be assigned to other work.

351. Shop work—carpentry: The lessons include instruction in the nature and use of tools; instruction and practice in shop drawing; elementary work with the plane, saw, chisel; the construction of different kinds of joints, timber splices, cross joints, mortise and tenon, mitre and frame work, and dove tail work, comprising the different joints used in cabinet work, and examples of framing roof trusses. Students who have had previous experience in the use of tools or who show special proficiency, are given work of an advanced character. *Six hours, one term.*

352. Shop work—Wood turning: The instruction includes the nature and use of the lathe and tools, and lessons comprise plain, straight turning, caliper work to different diameters and lengths, simple and compound curves, screw plates and chuck work, hollow and spherical turning. *Six hours, one term.*

353. Shop work—pattern making: The course includes work in whole and split patterns in wood for solid and cored castings, and core boxes for producing the necessary cores. The characteristics of the different kinds of timber used for patterns are studied, and attention is called to allowances necessary for shrinkage and draft. The patterns are intended to be used by the students in their subsequent work in the foundry. *Six hours, one term.*

SOPHOMORE CLASS.

312. Applied mechanics: Required of students in engineering courses. The fundamental laws of mechanical science are studied while special attention is given to the practical application of these principles to engineering work. *Three hours, second and third terms.*

361. Shop work—forging: A text-book is used from which is learned something of the characteristics of the metals and the best methods of working them. The lessons are so arranged as to make the student familiar with the handling of the tools and the successive steps in working metals by hand. Exercises in drawing, upsetting and bending, cutting, punching, and welding by various methods, are given, together with a course in steel forging, including hardening, tempering, and case hardening. *Four hours, first term.*

362. Shop work—foundry: Required of all students except those taking agriculture. The work for the most part consists of small articles, such as light machine parts and stock pieces used for the exercise work in the machine shop. A sufficient variety is introduced for the student to acquire a good general knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand and two part flasks, but some core work and more complicated work is introduced to illustrate the processes, as well as to furnish the castings for the advanced work in the machine shop. Instruction is given in operating the cupola, and from time to time lectures and recitations are held on the metallurgy of the metals used in the industrial arts. *Four hours, second term, and five hours third term.*

JUNIOR CLASS.

321. Practical mechanics: Required of students who take machine shop work. The instruction consists of recitations and lectures on general machine shop work. The construction, use, and limitations of the various machine tools, the forms of cutting tools and methods of grinding them, and the form and use of jigs and gauges, are studied, together with instruction in machine management, and time and cost keeping. *One hour, entire session.*

322. Strength of materials: Required of students in the engineering courses. The properties and characteristics of the materials of engineering construction are studied, and the development of the methods of calculating their strength under different conditions of stress is explained. Many problems involving the strength of beams, girders, columns, and shafts are worked out. *Three hours, second and third terms.*

323. Engines and boilers: Required of juniors in civil engineering and of the first year students in the course in applied electricity. An elementary descriptive course in which attention is called to the different types of engines and boilers, and methods of setting, valve gears and valve setting, piping systems and auxiliary apparatus for power plants. *Three hours, first term.*

324. Gas engines: Required of seniors in chemical engi-

neering, juniors in civil engineering, and the first year students in the two-year course in applied electricity. A descriptive course in gas, gasoline and oil engines; different types, different cycles, carburetion, ignition, troubles and remedies. *Three hours, second term.*

325. Transmission of power: Required of juniors in civil engineering, and of the first year students in the two-year course in applied electricity. Shafting, pulleys, bearings, belting, gearing, aligning of shafting, calculation of pulley and gear sizes, power of belts, lubrication and lubricating systems. *Three hours, third term.*

371. Shop work: Required of students in the courses of mechanical engineering and electrical engineering. This work is divided into two parts:

(a) A course of chipping and filing. The lessons comprise work on cast iron and wrought iron, and consist in chipping to line on flat and curved surfaces, key seating, filing and finishing to line, surface filing, slotting, pin and screw filing, and surface finishing with scraper.

(b) A course in machine work: The materials worked on include cast iron, wrought iron, steel and brass. Exercises are given in turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling in the lathe and drill press, reaming, boring, screw cutting in lathe and with taps and dies. Practice is given in working the planer, shaper, and milling machine. In the last part of the year, some work in tool making is given, such as making taps, reamers, and milling cutters. Some sort of construction or repair work for the department is always on the shop floor and students who are well advanced in this work have opportunity to gain additional practice and experience by assisting with this. *Six hours, entire session.*

374. Shop work: Required of students in the course of mining engineering and elective for juniors in the course of civil engineering. The work includes courses (a) and (b) as described in course 371 just preceding, except the amount of work required is less in proportion to the time consumed.

All shop work is done from blue prints and blackboard sketches. For the preliminary exercise work, special instruction sheets are prepared and given out to each student with the stock for the exercises. These sheets explain in detail each step in the process of producing the exercise, and are intended to supplement the individual instruction of the instructor. In the construction work it is the purpose to select some simple machine and build two or more of them on the interchangeable system. Jigs and templates are built to accomplish this result as far as possible. A system of time keeping is in force in the

being carried by the students, and the hours are adjusted to suit their available time.

341. Steam turbines: The theory, design and structural details of the different types of modern steam turbines are studied, and complete designs are worked out. *Three hours, first term.*

342. Power plant design and economics: The economics of power plant design, the relation of the different elements of a power plant to each other, and the conditions of maximum efficiency are studied. Plants are designed to give the highest efficiency under specified conditions, and actual plants are studied to discover, if possible, sources of additional economy in operation. *Three hours, third term.*

343. Works management: Methods of cost keeping, systems of organizing and paying labor, depreciation of plant, accounting and business organization are studied. Many problems are solved, including the layout of buildings and machinery for manufacturing plants. *Three hours, third term.*

SPECIAL STUDENTS.

Special students who have the necessary preparation may be admitted to any of the classes in this department. For the benefit of students who, for any reason, are not able to remain in college to complete the full course, but who wish some training in drawing and shop practice, a special two-year course has been arranged. This course is particularly recommended to young men who contemplate entering the mechanical trades either preceding or following the apprenticeship period. In many cases this work has been accepted as equivalent to a part of the apprenticeship period and the time of the latter shortened thereby. The drawing and mathematics are invaluable tools in any of the trades, and work in the different shops enables the apprentice to become familiar with the principles of the trades allied to his own.

MINING ENGINEERING AND GEOLOGY.

PROFESSOR BROWN.
ASSISTANT GILMOUR.

JUNIOR CLASS.

401. Mine surveying: All general surveying as given by the civil engineering department previous to the junior year is required for this course. The work covers general surveying methods as applied to conditions prevailing at mining properties, both underground and at the surface. The student is required to work out practical problems that he will be likely to meet in actual practice. *Five hours, first half of first term.*

Text-book: Durham's Mine Surveying.

402. Coal mining: For those who have taken course 401 and its prerequisites. This course includes the following:

Examination of coal properties; drifts, slopes and shafts; methods of working; plans of mines; coal-cutting machinery; trackwork; haulage; mine ventilation; coal washing; coking in beehive ovens; by-product coking. *Five hours from first mid-term to end of session.*

403. Junior drafting: The course includes free-hand lettering, mapping, detailed drawings to scale of various structures relating to mines, design of mine cars, design of ventilating fans. *Five hours, entire session.*

404. Summer course: The time will be divided between a study of gold mining and milling at Alexander city; coal mining, washing, and coking at Birmingham, and iron ore mining at Birmingham. Surveys and reports will be required. *Four weeks, immediately following commencement, between junior and senior years.*

SENIOR CLASS.

411. Mining: Modes of occurrence and origin of the various ores and economically valuable mineral deposits. Prospecting and examination of mineral properties, including boring by different methods. Methods of opening up mineral deposits, breaking ground, supporting excavations, developing and working coal and metalliferous deposits, haulage, hoisting, drainage, ventilation, lighting and provisions for ascent and descent. The last term is devoted to the design of mine structures such as head frames (timber and steel), coal tipples, mine buildings. *Three hours, entire session.*

412. Drafting: Map work consisting of the plotting of notes taken on summer trip between junior and senior years; drafting accompanying design of mine structures; original work in connection with thesis. *Four hours, entire session.*

413. Laboratory course: For seniors in mining engineering and chemistry and metallurgy. The work includes crushing, sampling, concentration, stampmilling, amalgamation and cyaniding. *Three hours, entire session.*

Text-books: Coal and Metal Miner's Pocket Book, and International Text Books.

421. Graduate course: This course is offered to those who desire to pursue the subjects related to mining beyond the scope to which the two years' course limits them. The work will be arranged to meet the requirements of those desiring to take it.

GEOLOGY.

JUNIOR CLASS.

431. Crystallography: For students in the courses in civil engineering, mining engineering, and chemistry and metallur-

gy. A thorough study is made of the crystal systems with the aid of a full set of crystal models and natural crystals. Special emphasis is laid upon the more practical features which will be of service in further mineralogical work. *Four hours, first mid-term.*

Text-book: Bayley's Elementary Crystallography.

432. Mineralogy: For juniors in the courses of civil engineering, mining engineering, and chemistry and metallurgy. The course consists of a thorough study of a large number of minerals from the standpoint of their physical characteristics. A good type collection of minerals is kept in the laboratory for comparison. An effort is made to have the student become familiar with economically important ores and non-metallic minerals, and the common rock-forming minerals so that he can identify them at sight by the application of a few simple tests. *Four hours, one and one-half terms.*

Text-book: Butler's Handbook of Minerals.

433. Lithology: For those who have satisfactorily completed course 432. This deals with the combinations of minerals in the make-up of rocks, and aims to bring out structure, texture, crystallization and mineralogical composition sufficiently to enable the student to recognize the commoner rocks in the sedimentary, igneous and amorphic classes. *Four hours, third term.*

Text-book: Kemp's Handbook of Rocks.

434. Agricultural geology: For juniors in agriculture. This course deals with the structure, composition and other characteristics of the different classes of rocks; the general principles involved in rock-weathering; special cases of rock-weathering; transportation and redeposition of rock debris; classification and character of resulting soils. *Two hours, second and third terms.*

Text-books: Merrill's Rocks, Rock-Weathering and Soils.

435. General geology: See course 441.

436. Engineering geology: The rock forming minerals; the general characters, mode of occurrence and origin of rocks; structural features and metamorphism of rocks; rock-weathering; surface waters; underground waters; landslides and their effects; wave action and shore currents; lakes, their origin, and relation to engineering work; glacial deposits, their origin, structure and economic bearing; building stone; limes, cement and plaster; clay and clay products; coals; petroleum, natural gas and other hydrocarbons; road foundations and road materials; ore deposits. Required of juniors in architectural engineering, special students in mining engineering, and elective for seniors in civil engineering. *Two hours, entire session.*

SENIOR CLASS.

441. General geology: For juniors in the course of mining engineering, and chemistry and metallurgy, and for seniors in the courses of civil engineering and general course. The course covers dynamic geology, structural geology, geomorphology, and historical geology in the order named. The lectures and recitations are supplemented by laboratory instruction and geological excursions. *Two hours, entire session.*

Text-book: Chamberlain and Salisbury's College Geology.

442. Economic geology, non-metallic minerals: For seniors in the courses in mining engineering, and chemistry and metallurgy. The course is presented by lectures and recitations and includes the study of modes of occurrence, distribution, origin and uses of coal, petroleum, limestone, salines, gypsums, fertilizers, abrasives, minor non-metallic minerals and mineral waters. *Two hours, first term.*

Text-book: Reiss' Economic Geology of the United States. (Revised.)

443. Economic geology, metallic minerals: For students who have taken course 442. The work includes a study of the ores of iron, copper, lead, zinc, gold, silver, silver-lead, aluminum, manganese, mercury, and the minor metals. *Two hours, third term.*

Text-book: Reiss' Economic Geology of the United States. (Revised.)

444. Methods of teaching physical geography: Especially adapted to the secondary schools of the State. In the course in general geology will be found much that is especially applicable to physical geography. It takes up a study of subterranean and surface agencies both as to their destructive and constructive processes. The results of these processes are then taken up in a study of the topography of the surface of the earth and under the following heads: The geographic cycle; land sculpture; topography as determined by faults and joints; adjustment of rivers; sea coasts; mountain ranges. Students desiring extra work in this subject may arrange for a three-hour course. *Two hours a week, first and second terms.*

ARCHITECTURE.

PROFESSOR BIGGIN.
ASSISTANT LEEK.

The department of architecture was established in June, 1907. The aim of this department is to give the best training possible within the time limits of a college course; only a part, however, of the architect's training can be acquired within

college walls, and it is recognized that this must be supplemented by experience in the offices of practicing architects.

Four-year courses are offered in architecture and architectural engineering, both leading to the degree of Bachelor of Science. The freshman and sophomore years of these courses are respectively alike, affording the student ample opportunity for investigation before making a choice. The schedules conform to the "standard minima" of the Association of Collegiate Schools of Architecture. A two-year special course in architecture is offered for the benefit of mature draftsmen, and a certificate given on completion.

The first requirement in architecture is the ability to design, from the artistic side, that the structure may please the eye, and from the practical one, that it may suit its purpose. Next in importance are the engineering studies necessary for proper construction. Finally the student must acquire the fundamentals of that broad cultural training everywhere recognized as indispensable to an architect's success.

Architectural design is taught on the basis of problems requiring a month or more for solution, and developed by the student under constant personal criticism. These are accompanied by short sketch problems to promote quickness of thought and execution, with no criticism until after they are turned in for judgment. Freehand drawing in some form runs throughout the entire course in architecture. History of architecture is taught by lantern lectures, accompanied by library research work and sketching; for students in architecture this is followed by historic ornament and short courses in the history of painting and sculpture.

A general course is given in building construction and superintendence, with the preparation of working drawings, details, specifications and contracts. This is supplemented by special work in the various engineering departments of the college, along such lines as heating and ventilation, wiring and illumination, reinforced concrete and steel frame construction. Of foreign languages, French is the most useful to the architect.

Students who at the close of the sophomore year elect architectural engineering, devote less of the remaining period than those in architecture to the subjects of design and history. They are also not required to take water color painting, advanced freehand drawing, clay modeling or a foreign language. The time thus saved is occupied in engineering studies and advanced construction.

During the summer months all students in the department are required to spend one month or more in the offices of practicing architects, or follow a prescribed course in library

research work and sketching; examinations are held on this in the Fall and college credit given.

The following courses are offered in this department:

FRESHMAN CLASS.

11. Freehand drawing: Work in pencil and wash from casts of architectural ornament, architectural fragments and parts of the figure. Out-of-door sketching. *Four hours, entire session.*

15. Shades and shadows: Delineation of architectural shades and shadows. This course must follow or be accompanied by descriptive geometry. *Two hours, first term.*

17. Perspective: Theory and practice of architectural perspective, and methods of rendering. This course must follow or be accompanied by descriptive geometry. *Two hours, second term.*

19. Elements of architecture: The classic orders of architecture and elementary studies in composition, with drawings rendered in India ink. This course must follow or be accompanied by descriptive geometry. *One hour lecture, and six hours drafting, entire session.*

SOPHOMORE CLASS.

21. History of architecture: Origin and development of historical styles of architecture from the earliest times to the fall of the Roman Empire; the Moslem irruption; Romanesque and Gothic architecture. Typical examples are studied in detail and for this purpose the lantern is in constant use. Stress is laid on the evolution of a style from changes in structural forms, political and religious conditions and national character. Prerequisite course: Ancient and medieval history; students who have not offered this for entrance must take it in the freshman class. *One hour lecture and two hours library research and sketching, entire session.*

25. Charcoal drawing: Work in charcoal and wash from casts of architectural subjects, antique sculpture and from life. Out-of-door sketching. Prerequisite course: Arch. 11, or its equivalent. *Six hours entire session.*

29. Architectural design: A study of architectural composition; problems in design, composition, planning, motives, details and rendering. Prerequisite course: Arch. 19, or its equivalent. *One hour lecture, nine hours library and research and drafting, entire session.*

JUNIOR CLASS.

31. History of architecture: Continuation of the technical and historical study of architecture; the Renaissance and modern times. During the third term particular attention is given to architectural development in the United States. Pre-

requisite course : Arch. 21. *One hour lecture and two hours library research and sketching.*

33. Building construction: Building materials and construction; foundations, footing and walls; stones and stone cutting; stone and brick masonry; concrete; terra cotta; iron and steel supports; fire resisting construction; plastering; water supply; plumbing and drainage. Working drawings and details. Specifications, contracts and superintendence. *Two hours lectures and two hours drafting, entire session.*

35. Pen and ink rendering: Given with special reference to the rendering of architectural subjects. Prerequisite course: Arch. 11 or its equivalent. *Four hours, first and third terms.*

37. Water color painting: Work from models and still life. Conventional and sketch rendering of architectural subjects. Out-of-door sketching. Prerequisite course: Arch. 25. *Six hours, entire session.*

39. Architectural design: Continuation of problems in design, composition and planning. The planning of domestic buildings. Prerequisite course: Arch. 29. *Twelve hours library research and drafting, entire session.*

SENIOR CLASS.

41. Historic ornament: An analysis and study in detail of the main historic styles of decoration, with a brief outline study of the development of mosaic, ceramics, stained glass, ornamental metal work, textile fabrics, furniture and other minor arts. Prerequisite, except for special students: Arch. 31. *One hour lecture and two hours library research and sketching.*

42. History of painting: A brief survey of the development of painting, with special reference to mural work. *One hour lecture and two hours library research sketching.*

43. History of sculpture: An outline study of the development of sculpture and its relation to architectural design. *One hour lecture and two hours library research and sketching.*

45. Building construction: Continuation of building materials and construction; carpenter work; properties and uses of various woods; methods of framing; slow-burning and mill construction; exterior and interior finish; sheet metal work; elevators; painting and glazing; hardware. Working drawings and details. Specifications, estimates and superintendence. Relations between owner, contractor and architect. *Two hours lectures and two hours drafting, entire session.*

47. Advanced freehand drawing: Figure work from life, in color or black and white. Out-of-door sketching. Prerequisite course, except for special students: Arch. 37. *Six hours, first and second terms.*

48. Clay modeling: Work from architectural casts and from sketches. Prerequisite courses: Arch 41 and 47. *Six hours, third term.*

49. Architectural design: Continuation of problems in design, composition and planning. During the third term a single major problem is studied and worked up in detail as a thesis. Prerequisite course, except for special students: Arch. 39. *Eighteen hours library research and drafting, entire session.*

MACHINE DESIGN AND MECHANICAL DRAWING.

PROFESSOR FULLAN.
ASSISTANT PROFESSOR THOMAS.
ASSISTANT LAMPROS.
ASSISTANT GATCHELL.

The following courses are offered in this department:

FRESHMAN CLASS.

601. Mechanical drawing: This course in drawing is of general educational value, and is required of students in all courses. The object of the course is to train the mind through the eye and hand with the applications of geometry to drawing. Accuracy, neatness, and the correct use and the care of instruments, are given special attention.

The work is given in the following order:

(1) Freehand drawing and freehand lettering.
(2) Linear drawing—geometrical construction.
(3) Orthographic projection, sections and intersections.
(4) Development of surfaces and the construction of models.
(5) Isometric, Cavalier, and dimetric projections.
(6) Study of working drawings, making tracings and blue prints.

(7) During the third term, in lieu of (5) above, a course in agricultural drafting is given freshman students in agriculture, and is arranged for the purpose of assisting them to a knowledge of the principles of mechanical drawing and their application to the farm. The course consists of drawings in the following lines of work:

(a) Farm maps: topographical drawing; topographical conventions; maps and plots; layout for farm buildings, outhouses and grounds.

(b) Building construction: Plan, elevation, and section; details, framing joints; building materials; layout of plumbing and water supply on the farm; plans for barns, hayracks and roof construction; and framing for houses, etc.

(c) Concrete forms: Simple forms; steps and stair forms;

wall forms; layout of forms for silo building; watering troughs and fence posts.

Freehand drawing of geometrical subjects is given early in the course. It provides training of a certain definite nature by developing close observation and accuracy in representing the forms of models used in the work. Freehand lettering of standard practice is strongly emphasized throughout the entire course. The construction and application of Roman and Gothic capitals and small letters to working drawings and the arrangement and design of formal titles are treated in this division.

Under the head of linear drawing, special attention is given to the proper use and care of instruments. The most useful of the geometrical constructions are worked out in pencil and afterwards carefully inked.

Orthographic projection with sections and intersections is given in the beginning of the second term, and is a prerequisite to course 602 in descriptive geometry. Developments of surfaces are made, and paper models of the objects are constructed from these developments. The construction of these models has the property of more firmly fixing the principles involved in the preceding division in the mind of the student and is given special attention.

In the third term pictorial representations of objects are given by means of single-view projections, isometric, cavalier, and dimetric. The paper models made by the pupil are now used for subjects. A number of working drawings of familiar objects are required in the last part of the year. Penciled drawings to scale, tracings and blue prints of these objects are made by each member of the class. *Five hours, entire session.*

SOPHOMORE CLASS.

602. Descriptive geometry: Required of all students preparing for engineering and architectural courses. The work is given by lectures, written recitations and drafting room instruction. In this course, theory and practice are combined with the purpose of training the student in the graphical expression of ideas. The instruction includes problems relating to the point, straight line, and plane; tangents and normals; to cylindrical, conical, and warped surfaces, to sections, intersections, and developments; to shades, shadows, and perspective; and is intended to develop in the mind of the student a clear concept of magnitudes in space. The lectures and written recitations are to impart principles and to permit the instructor to meet the entire class, and, with diagrams and models, supplement the work of the text. The drawings, two hours per week, consists of plates of problems, which are selected from the text-book and other sources. *Four hours, entire session.*

JUNIOR CLASS.

604. Kinematics of machinery: Required in the courses of mechanical engineering and electrical engineering. Under this head machines are analyzed and their elementary combinations of mechanism are studied. Motions and velocities, instantaneous centers, kinematic chains, velocity diagrams, parallel and straight line motion mechanisms, are given early in this course. The communication by means of gear wheels, belts, cams, screws, and link work, and the different ways of obtaining definite velocity ratios and definite changes of velocities in machine parts are investigated. Problems designing quick motions, trains of mechanisms for various purposes, and gear trains are treated. Illustrated lectures with the lantern, showing practical applications of mechanism to the design of machinery, are given at intervals throughout the course. *Three hours, first term.*

605. Graphic statics of mechanism: Required in course of mechanical engineering. The lectures provide a brief course in graphic statics, graphical statics of mechanism, and in the design of structures, including roof trusses for factory buildings, crane frames, girders, and water-tank towers. The stresses in machines and structures are investigagted by graphical methods, which are carefully checked in the beginning, by analytical proofs. This course includes the solution by graphical methods of such problems, before which analytical methods are comparatively impotent, as those which involve the friction losses in machines, and of the determination of the efficiency of mechanisms. The graphical method is also applied to dynamics by problems in the balancing of engine crankshafts working under specified conditions. The use of manufacturers' handbooks and drafting-room practice are given special attention. *One hour, entire session.*

606. Machine design: Required in the courses of electrical engineering and mechanical engineering. Instruction is given in the design of fastenings and machine parts, and in the general methods of arranging views. This course includes the design of cams, gear tooth outlines, quick-return motions, and link-work combinations, which supplements course 604, in kinematics. Scale drawings of simple machines are made from dimensioned sketches, which each student makes for himself from an actual machine or model. Tracings and blue prints are made from these drawings. All the instruction is intended to familiarize the students with modern drafting-room methods. *Four hours, entire session.*

SENIOR CLASS.

607. Machine design—lectures: Required in the courses of mechanical engineering and electrical engineering. These lec-

tures are intended to cover the general instructions to the students, such as the selection of materials for different machine parts, the rules for proportion of parts to secure strength, symmetry, and cheapness of manufacture, and the best methods of making, recording and preserving the calculations incidental to the design of a complete machine. Much valuable engineering data of current nature in the form of notes are given as a supplement to the text-book. Illustrated lantern lectures on subjects related to the course are given at intervals during the year. *One hour, entire session.*

608. Machine design—drawing: Required in the course in mechanical engineering. This is a continuation of the junior course in machine design. Original problems involving the design of complete machines to work under specified conditions are assigned, and the student develops the idea in the form of sketches. These are submitted to the instructor for criticism and are afterwards embodied in complete detail and assembly drawings. The calculations of each design are written up neatly and filed with the drawings. Special attention is given to the strength of the parts, to the harmonious and symmetrical appearance of the complete machine, and to the details as regards practical manufacture. *Six hours, entire session.*

609. Machine design—drawing: Required in the course in electrical engineering. The work given and the methods pursued are similar to those described in course 608, just preceding, but the amount of work required is reduced in proportion to the amount of time given to the subject. *Three hours, entire session.*

610. Technical Writing: This course is arranged for senior students in the engineering branches. Its purpose is to familiarize the student with the different forms of technical writing, and to provide exercise with written work; to pursue study of trade catalogs, technical magazines, scientific papers, and technical nomenclature. Course in Composition (Ac. 102a) is a prerequisite for this course. A loose-leaf note book, containing the written work, is submitted by the student each week, and is the basis for the evaluation of the term grade. The lectures and laboratory work are arranged as follows:

(1) Lectures: complete notes required.

(2) Graphic Methods for Presenting Facts: study of charts, curves and diagrams.

(3) Engraving Processes: photo-engraving; wax-engraving; prepared drawings for copy for illustration.

(4) Photographic Illustration: use of camera; selection of views for cuts; use of "skeleton" and "x-ray" photo-illustrations.

(5) Study of Trade Catalogs: preparation of a simple trade catalog for manufactured article.

(6) Study of Current Engineering Writings: patent office reports; periodicals, magazines and scientific papers.

(7) Visit to Power or Manufacturing Plant: preparing complete article from notes, illustrated with photographs, charts, diagrams and drawings. *Three hours, first term.*

GRADUATE STUDENTS.

611. The work offered during the post-graduate year is an extension of that of the senior year. More of the theory of the subject is taught, more intricate machines are involved, and problems are given involving the design of a series of machines for manufacturing some specific article. The problems arising in the design of a line of machines of different sizes are also taken up, including the applications of graphical methods and the use of factors of enlargement and reduction. Special attention is given to the effect of current practice on the proportion of machine parts.

A research study into the Patent Office records or some machine or device is offered in this course. This feature is to develop the inventive capacity of the student, and is given special attention.

Suitable text and reference books are used.

612. Methods of teaching drawing and descriptive geometry: A course in the methods of teaching drawing and descriptive geometry is given to those who wish to prepare for teaching these branches. This course includes advanced work in shape of problems, supplemented by frequent conferences with the instructor, a full bibliography of works on the subjects, and an extended course in reading.

Those who desire to avail themselves of an opportunity to practice the teaching of the subjects may be permitted to attend the meetings of the large classes in elementary work for the purpose of observing methods of teaching.

Those who show sufficient preparation may be allowed to assist in tutoring delinquent students and those who enter conditioned.

Special attention is given to the subject of drawing as taught in high school work.

613. Thesis: A thesis taken in this department may be a study of some machine or its parts; research in records of subjects relating to the work of the department; or, a study of current practice in the design of some specific machine. It is required to be written in parts, one of which is to be presented at the end of each term. The complete thesis is due on May 1st.

TEXT-BOOKS.

Cross' Mechanical Drawing, Jamieson's Isometric Drawing, Higbee's Essentials of Descriptive Geometry, French's Engineering Drawing, Keown's Mechanism, Spooner's Machine Design, Smith and Marx's Machine Design, Cathcart and Chaffee's Graphics, Halsey's Handbook Machine Design, Frost's Good Engineering Literature, Brinton's Graphic Methods for Presenting Facts.

COLLEGE OF AGRICULTURAL SCIENCES

CHEMISTRY.

PROFESSOR ROSS.
PROFESSOR HARE.
PROFESSOR BRAGG.
ASSISTANT PROFESSOR POWELL.
INSTRUCTOR MARSH.
ASSISTANT MARTIN.
ASSISTANT MOTLEY.
ASSISTANT CLIFT.

Instruction in this department embraces the following courses of lectures, systematic laboratory work being given in connection with each course for the practice of chemical analysis and chemical research:

FRESHMAN CLASS.

101. Course in general chemistry: This consists of a series of lectures including a discussion of the fundamental principles of chemical philosophy in connection with the history, preparation, properties, and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form. *Four hours, entire session.*

REFERENCE BOOKS.

McPherson and Henderson's General Chemistry, Newth, Holleman, Smith, Mellor, Chemical Journals.

SOPHOMORE CLASS.

103 (b). Organic chemistry: This course, though somewhat more condensed, is similar to 103 (a), with the exception that the latter portion of the course is devoted to a special study of fats, carbohydrates and proteins with reference to their functions in the life processes of plants and animals. *Three hours, first and second terms.*

105. Agricultural chemistry: This course consists of lectures on chemistry in its application to agriculture and includes a thorough discussion of the origin, composition, and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of

soils, the manufacture and use of fertilizers, the chemical principles involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist. *Four hours, third term.*

REFERENCE BOOKS.

Snyder's Soils and Fertilizers, Snyder's Chemistry of Plant and Animal Life, Johnson's How Crops Grow, and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Stoddart's Agricultural Chemistry, Storer's Agriculture in Relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

JUNIOR CLASS.

102. Industrial chemistry: Lectures, including discussion in detail of the processes and chemical principles involved in the most important applications of chemistry, in the arts and manufactures, to the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc.

These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams. *Three hours, first and second terms; four hours, third term.*

REFERENCE BOOKS.

Thorp's Industrial Chemistry, Wagner's Chemical Technology, Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Sadtler's Industrial Organic Chemistry, Blount and Bloxom's Chemistry for Engineers and Manufacturers.

103 (a). Course in organic chemistry: Instruction in this subject embraces lectures and recitations upon the leading facts and principles of the chemistry of the carbon compounds, and includes a study of the method of preparation of the more important compounds, their properties, and their structural and stereo-chemical relations. *Three hours, first and second terms; two hours, third term.*

TEXT AND REFERENCE BOOKS.

Remsen's Organic Chemistry, Richter's Organic Chemistry, Gatterman's Practical Methods of Organic Chemistry.

SENIOR CLASS.

104. Course in Metallurgy: This consists of lectures and recitations upon the more important metals, such as iron and steel, copper, lead, tin, silver, gold, mercury, zinc, etc. It

includes a discussion of the physical and chemical properties of the metals and their alloys, the ores and their treatment, and the processes by which the metals are obtained from the ores, with chemical reactions involved. *Three hours, second and third terms.*

104b. Metallurgy: An advanced course in iron and steel. Lectures and recitations upon the special methods of manufacturing iron and its several alloys, or steels. Required of seniors in mining engineering, chemical engineering, chemistry and metallurgy, and mechanical engineering. *Three hours, third term.*

106. Engineering chemistry: A course given during the senior year, especial attention being devoted to the study of the construction and equipment of the chemical plants devoted to the manufacture of the more important chemical products. Excursions to various chemical and metallurgical plants during the course of the year will aid in familiarizing the student with the practical details of the operation of the leading industries. *Two hours, second and third terms.*

107. Course in theoretical chemistry: The more modern phases of chemical theory are given special attention. *Two hours, first term.*

108. Course in physical chemistry: Lectures and recitations. *Two hours, entire session.*

109. Methods of teaching chemistry in the secondary schools: In this course, students who have had the necessary preliminary work in chemistry will be afforded the opportunity of taking laboratory practice in experimental chemistry for lecture purposes and for the purpose of the practical study of methods of handling classes in experimental laboratory work. Advanced students can also take the course in the history of chemistry which is provided in the senior year of the course of chemistry and metallurgy. *Hours to be arranged.*

111. Course in advanced inorganic chemistry: *Two hours per week, entire session.*

LABORATORIES.

110. Courses of practical work in the laboratory are carried on in connection with all courses of lectures.

The laboratories, which are open from 9 A. M. to 5 P. M. during six days in the week are amply supplied with everything necessary for instruction in chemical manipulation in qualitative and quantitative analysis, and in the methods of prosecuting chemical research. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles and the common

re-agents and apparatus used in the qualitative and quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order, the value of those which have been injured or destroyed will be deducted from his contingent fee.

SOPHOMORE CLASS.

(a) All students in the courses in agriculture, chemistry and metallurgy, chemical engineering, and mining engineering are required to take practical laboratory work. Students in the course in pharmacy, upon application, may be allowed to take this work.

The work of this course embraces the preparation of a number of non-metallic elements, and some of the more important inorganic compounds, the identification of metals by means of the blowpipe, and the qualitative separation and detection of the bases and acids.

JUNIOR CLASS.

110 (b). A course in quantitative analysis, embracing gravimetric and volumetric analysis, and including the analysis of limestones, iron ores, etc. *Six hours, entire session.*

SENIOR CLASS.

(c). A course in quantitative analysis, including analysis of fertilizers, soils, coals, ores, iron and steel, sugars and sugar products, feed stuffs, mineral waters, fluxes, slags, cinders, furnace gases, etc. The nature of the work is varied somewhat to suit the individual object of the student. *Six hours, entire session.*

(d). The laboratory course provided for students in the course in mining engineering embraces work in quantitative analysis, including assaying. In the latter portion of the course, especial attention is given to metallurgical analysis and the fire assay of ores of gold, silver, and other important metals. *Eight hours, entire session.*

(e). In the courses in pharmacy and veterinary science, instruction in urine analysis and in toxicology and toxical analysis is given during the last term.

(f). In the senior year, a laboratory course in organic chemistry is provided for students in the course in chemical engineering throughout the entire year, and for students in the course in chemistry and metallurgy during the third term. *Four hours, entire session.*

The short course includes systematic laboratory work in organic preparations, while the longer course embraces work in organic analysis, as well as in preparations.

112. In addition to the laboratory work above described, it is designed to give a short course of laboratory work in industrial chemistry, in which the student will apply upon a small scale the principles involved in the processes of some of the more important chemical industries.

Students completing the above courses are afforded ample facilities for advanced work along special lines.

AGRONOMY.

PROFESSOR DUGGAR.
PROFESSOR FUNCHESS.
INSTRUCTOR WINGARD.

The regular agricultural course extends through four years, and is intended to prepare those who complete it to become successful farmers, farm superintendents, and agricultural scientists in the various divisions of agricultural work in the U. S. Department of Agriculture, and the numerous agricultural colleges and experimental stations. The studies in the regular agricultural course are so arranged that a student may obtain a thorough education while acquiring the technical training necessary to the most successful management of farming operations and of agricultural investigation or teaching. No foreign language is required for graduation in this course, but those who expect to engage in scientific work of the U. S. Department of Agriculture or of the agricultural colleges and experiment stations, have the opportunity to study Latin, French and German, or any one or two of these.

For the benefit of those who are unable to spend four years at college, and who desire to prepare for the management of a farm, a short two-year course in agriculture is provided. In this the student devotes his entire time to those studies having a direct bearing on his future occupation.

The following courses of instruction are offered:

SOPHOMORE CLASS.

202. Corn: Lectures, recitations, and field practice on the cultivation, judging and improvement of corn. The student assists in harvesting certain experiments, becomes acquainted with a number of the best varieties, learns to select the best ears and the best plants, and notes the results of experiments in improving or breeding corn. *Two hours, lectures; two hours, laboratory, first term.*

203. Farm accounts: *Lectures and practice, two hours, second term.*

204. The small grains: Lectures, recitations, and field practice on wheat, oats, rye and barley. These plants are

is laid on giving the student practice in locating terraces, laying out ditches, and planning systems of tile drainage. Such time as is available is given to the study and planning of barns, fences, gates, etc. *Two hours lectures, two hours laboratory, first term.*

SENIOR CLASS.

521. Farm engines: This course consists of lectures and laboratory practice with farm engines; application of power to farm operations, such as feed grinding, silage cutting, pumping, spraying, wood saws, etc.; transmission of power, including belt lacing, rope splicing, etc. Especial attention is given to finding and remedying engine troubles. *Two hours per week, second term.*

522. Farm machinery: It is the aim of this course to acquaint the student with improved farm machinery; adjustment, construction, repair, and operation of preparation machinery, seeding machinery, cultivators, haying machinery, etc. *Two hours per week, second term.*

BOTANY.

PROFESSOR ROBBINS.
ASSISTANT PROFESSOR MASSEY.
ASSISTANT MCRAE.
LABORATORY ASSISTANT DEAL.

The courses offered by the Department of Botany are designed to meet the needs of three different groups of students: Those desiring to secure some general acquaintance with the elementary facts and principles of a biological science as a necessary part of a cultural education; those desiring a thorough and detailed presentation of certain aspects of the subjects as a prerequisite to entrance upon the study of medicine or of some phase of applied botany, such as horticulture or agronomy; those seeking the fullest possible collegiate training in the subject as a preparation for teaching or for advanced work in the subject. For information as to laboratory equipment see page 19.

SOPHOMORE CLASS.

301. General botany: This course is planned to meet the needs of all three classes of students just named. It is designed to furnish a broad general introduction to the fundamental principles of a biological science, supplying the foundation upon which subsequent courses are built while at the same time giving to the non-specialist a good acquaintance with those biological principles which should form a part of his equipment for life. The course is not rigidly morphologi-

cal, but attempts to supply an introduction to the evolutionary history and the fundamental physiological processes of organisms, employing plants as illustrative material. It is composed of three parts. The fall term is devoted to the general morphology of the flowering plants, and to the fundamental physiological processes. The winter term is devoted to a general morphological study of selected representatives of the form phylla of the plant kingdom, the aim being to give the student a general acquaintance with the plant groups. The third term is devoted to the taxonomy of the spermatophytes, stress being laid upon economic forms. Required of all sophomores in the college of agriculture. A laboratory fee of $1.50 is charged in this course to cover the cost of materials and laboratory sheets. *Two hours, lecture, and four hours laboratory, entire session.*

302. Botany for Pharmacy Students: The first two terms of this course are very similar to course 301, described above. The spring term is devoted to a detailed study of the taxonomy of poisonous and medicinal plants. A laboratory fee of $1.50 is charged; to cover the cost of material and laboratory sheets. Required of the sophomores and first year specials taking pharmacy. *Two hours, lecture; four hours laboratory, entire session.*

JUNIOR CLASS.

303. Agricultural bacteriology: This course is designed to supply to students contemplating specialization in animal husbandry or in some phase of applied botany, as horticulture, forestry, or agronomy, such an introduction to the principles of bacteriology as may furnish a basis for study of the special problems to be encountered in these lines of work. After a brief introductory discussion of the general morphology and physiology of the bacteria, the biological relations of the specialized groups will be taken up. The bacteriology of fermentation and putrefaction, the nitrogen-fixing and sulfur bacteria, the application of bacterially produced processes in the industries, and the more important problems of soil bacteriology will be dealt with in such details as time permits. The point of view throughout the course is distinctly economic. The forms pathogenic for man and for animals will not be considered. A prerequisite for this course is Agr. 301. A laboratory fee of $2.00 is charged in this course to cover the cost of materials and laboratory sheets. *Two hours lectures, four hours laboratory, first term.*

304. Plant Physiology: This course deals with the fundamental processes involved in plant response and plant behavior as related to crop production. The topics covered in the lectures and laboratory are the following: The cell as the

physiological unit; the principles of absorption; transpiration and water movements in plants; water requirements of economic plants; mineral nutrition; the carbon relations of plants; the relation to nitrogen; the products of metabolism; digestion and translocation; respiration, aeration, and fermentation; growth; reproduction; the relation of plants to temperature, light, and toxic agents; variation and heredity. A prerequisite for this course is Agr. 301. A laboratory fee of $3.00 is charged in this course to cover the cost of materials and laboratory sheets. *Two hours lecture, four hours laboratory, second and third terms.*

305. Plant Pathology: At the outset this course deals with the morphology, distinguishing characters, and methods of identification of those orders of the fungi which are concerned in the production of economically important plant diseases. The remaining time is spent on a detailed study of important diseases, bringing out the relation of the invading organism to the host. The diseases are studied in both laboratory and field. Toward the end of the course students are required to prepare a paper on some assigned subject in pathology. In this work familiarity with the sources of literature on plant diseases is obtained. Prerequisite for this course are Agr. 301, 303 and 304. A laboratory fee of $2.00 is charged to cover the cost of material and laboratory sheets. *Two hours lecture, four hours laboratory, first and second terms.*

306. Plant Histology: A short one term course intended to familiarize the student with histological technique as a foundation upon which he can build. Prerequisite Agr. 301. *Two hours lecture, four hours laboratory, second or third term.*

307. Taxonomic botany: This course is intended to meet the needs of students desiring to acquire some acquaintance with the flora of the region. The work demands some such knowledge of the general morphology of the flowering plants as is supplied by course 301 or its equivalent. The student will be instructed in the use of keys and manuals, and the lectures will deal with the classificatory characters of the more important plant families. The laboratory work will be to a considerable extent adapted to the especial needs of the student, so that those who desire to pay particular attention to special groups, as an adjunct to work in horticulture or agronomy, will find an opportunity to do so. Required of sophomores in pharmacy and juniors in veterinary medicine. *Two hours lectures, four hours laboratory or field, third term.*

GRADUATE COURSE.

The department offers to properly prepared students opportunity for advanced work in botany, particularly in plant physiology and pathology. Students planning to do graduate

work should consult with the head of the department as early in the course as possible, preferably at the beginning of the junior year, in order that proper choice of the electives may be made. The general requirements for graduate work in the department are: the satisfactory completion of the undergraduate courses in botany, together with the required courses in organic and agricultural chemistry, courses in plant breeding and forestry (Horticulture 609 and 608), and a fair reading knowledge of German and French. By special arrangements with the department head, a student may begin graduate work without having fully met these requirements, with the understanding that they are to be fully met prior to serious entrance upon his work in the department, and in addition to the work in botany required for the Master's degree.

TEXT-BOOKS.

303. Marshall's Microbiology.

304. Hass and Hill, Introduction to the Chemistry of Plant Products; Duggar's Plant Physiology; Jost's Plant Physiology.

305. Duggar's Fungous Diseases of Plants.

306. Chamberlain's Methods in Plant Histology.

307. Gray's School and Field Botany, revised edition.

DEPARTMENT OF PHARMACY.

PROFESSOR BLAKE.
INSTRUCTOR MOTLEY.
ASSISTANT DUBBERLY.

The pharmacy department of this institution is a member in good standing of the American Conference of Pharmaceutical Faculties.

Three courses are offered—the two-year course leading to the degree *Graduate in Pharmacy;* the three-year course leading to the degree *Pharmaceutical Chemist;* and the four-year course leading to the degree *Bachelor of Science in Pharmacy.*

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than 250 drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, origin, habitat, constituents, medicinal action and dose.

FIRST YEAR.

401. (a). Pharmacy: Metrology; specific gravity; heat and applications of heat; fundamental operations of pharmacy;

apparatus used in pharmaceutical processes, pharmaceutical arithmetic. *Three hours, first term.*

(b). Pharmaceutical laboratory: Preparation of official and non-official galenicals, including the following classes of preparations: waters, spirits, liquors, mucilages, pills, elixirs, oleates, tinctures, etc. *Two hours, lectures, six hours laboratory, first and second terms.*

402. Pharmacognosy: The study of crude drugs; lectures, recitations, and practical work in identification. *Four hours, entire session.*

406. Pharmaceutical chemistry: A study of the official salts, official title, chemical formula, reactions, description, physical identification, dosage, etc. *Three hours, second and third terms.*

SECOND YEAR.

403 (a). Pharmaceutical technique and manufacturing pharmacy; official and non-official galenicals and chemical preparations; a thorough study of the U. S. P. and N. F. class work. *Three hours, entire session.*

(b). Manufacture of more difficult galenicals and U. S. P. chemical preparations. *Twelve hours, first term.*

(c). Alkaloidal assay. *Nine hours, second term.*

(d). The compounding of fifty or more prescriptions and individual instruction. *Four hours, third term.*

(e). Pharmaceutical testing and drug analysis. *Six hours, third term.*

404. Pharmacognosy: The study of crude drugs. This course is a continuation of course 402. *Three hours, first term.*

405. Prescription reading and incompatibilities: Lectures and recitations. *Three hours, second and third terms.*

407. United States Pharmacopoeia: This course is primarily a review intended to prepare the student to stand the State examinations. It covers all crude drugs, organic and inorganic chemicals and preparations found in the U. S. P. *Three hours, second and third terms.*

THIRD YEAR.

408 (a). Food and Drug Analysis: A study of the composition and method of analysis of leading food products, such as vinegars, fats and oils, dairy products, canned fruits and vegetables, alcoholic liquors, candies, preservatives, etc.

Drug analysis includes the chemical and microscopical examination of drug products that are especially liable to adulteration. *Twelve hours, first term.*

408 (b). Organic Chemical Laboratory: The manufacture of not less than 35 organic chemicals. *Twelve hours, second and third terms.*

TEXT AND REFERENCE BOOKS.

Arny's Principles of Pharmacy, Steven's Pharmacy and Dispensing, Kraemer's Botany and Pharmacognosy, Caspari's Treatise on Pharmacy, Sayre's Organic Materia Medica and Pharmacognosy, Culbreth's Materia Medica and Pharmacognosy, Scoville's The Art of Compounding, Beal's Prescription Practice, Dorland's Pocket Medical Dictionary, Ruddiman's Incompatibilities in Prescriptions, O'Connor's Commercial Pharmacy, Lyon's Pharmaceutical Assaying, United States Pharmacopoeia, United States Dispensatory, National Dispensatory, Prescott's Organic Analysis, Allen's Commercial Organic Analysis, Pharmaceutical Journals, Reports of American Pharmaceutical Association, Holland's Materia Medica and Toxicology.

HORTICULTURE.

PROFESSOR STARCHER.
ASSOCIATE PROFESSOR PRICE.
LABORATORY ASSISTANT ISBELL.

Instruction in this subject begins with the third term of the sophomore year and continues through the junior and senior years for students taking the regular four-year course in agriculture. A special two-year course in horticulture and related subjects is open to students who are unable to take the regular four-year course.

Practical exercises in the laboratory and field supplement the lectures and recitations. Constant attention is given to the fundamental principles and science upon which the best in practical methods is based.

SOPHOMORE CLASS.

601. Principles of plant culture: This includes the study of germination, propagation, transplanting, conditions of plant growth, etc.; also seed testing, preparation and sowing of seed beds. *Recitations, two hours, third term. W.* 11-12; *Th.* 10-11.

Plant propagation: (to accompany 601): Laboratory practice in seed testing, propagation of plants, pruning, etc. Students are required to submit illustrated notes. *Laboratory and field, four hours, third term. M., Th.* 2-4.

Text-books: Principles of Plant Culture (Goff), and The Nursery Book (Bailey).

JUNIOR CLASS.

602. Landscape gardening: An introduction to the general subject of landscape design. The trees, shrubs, vines, perennials, and annuals adapted to southern gardens are studied.

Individual problems are presented for the embellishment of the home and school grounds, and plans for public squares and parks are studied. *Lectures, two hours, first term. Tu., Th.* 10-11.

Text-books: Landscape Gardening (Maynard). References Landscape Gardening (Waugh); Modern Civic Art (Robinson); The Landscape Beautiful (Waugh); Weidenmann and other authors.

603. Vegetable gardening: Studies of the principal truck and garden crops with notes as to their origin, classification and economic importance; methods of growing, fertilizing, harvesting, marketing, and storing these crops. *Recitations and lectures, two hours, laboratory, two hours, second and third terms; second term, Tu., F.* 11-12, *Th.* 2-4; *third term, Tu., F.* 11-12, *W.* 2-4.

Text and reference books: Garden Farming (Corbett), Vegetable Gardening (Bailey), Up-to-date Truck Growing in the South (Davis), Vegetable Gardening (Vilmorin), Southern Gardener's Manual (Newman), Vegetable Gardening (Watts).

604. Orchard technique: A laboratory course in spraying pruning, fertilization, cultivation, and orchard management, supplementing course 603. *Two hours, second term. Tu.* 2-4.

References: The Pruning Book, Bailey Farm and Garden Rule Book (Bailey).

SENIOR CLASS.

605. Fruit growing: A study of the more important fruits and nuts of the United States, with special reference to their cultivation in home plantings and commercial orchards, harvesting, grading, packing, marketing, leading varieties for the several sections. *Recitations and lectures, three hours, entire session, laboratory two hours, first, second and third terms. M., W., F.* 9-10; *laboratory first and second terms, F.* 2-4; *third term, Tu.* 2-4.

Text and reference books: Principles of Fruit Growing (Bailey) 20th revised edition. Fruit Harvesting, Storing and Marketing (Waugh), Citrus Fruits (Coit), The Pecan (Hume), Citrus Fruit and Their Culture (Hume), Systematic Pomology (Budd and Hansen) and (Waugh), The American Fruit Culturist (Thomas).

606. Canning: Studies in the canning of the different fruits and vegetables. *Lecture one hour, laboratory two hours, first term, Tu.* 8-9 *and* 2-4.

607. Floriculture: This course briefly covers the subject of greenhouse construction and management, with special reference to growing of the leading vegetables and decorative plants with discussions on the forcing and marketing of vegetables

and cut flowers. *Lecture one hour, laboratory, two hours, second term. Tu.* 8-9 *and* 2-4.

608. Forestry: An elementary course, embracing a study of the forest conditions in Alabama, care of woodlots, preservation of wood, and the uses of the different southern woods. *Recitations and lectures, three hours; laboratory and field exercises two hours, second term. Tu., Th.* 10-11; *W.* 12-1; *laboratory M.* 2-4.

Text-books: Elements of Forestry (Moon and Brown), First Book of Forestry (Roth), Practical Arboriculture (Brown), Primer of Forestry (U. S. D. A.), Principles of Handling Woodlands (Graves), Economics of Forestry (Fernow), Principles of American Forestry (Green), Shade Trees in Towns and Cities (Solotaroff).

609. Plant breeding: A study of the improvement of plants, theories and laws of plant breeding, the origin of the choice varieties of garden and farm crops. *Lectures and recitations two hours, third term. Tu. and F.* 8-9.

Text and reference books: Principles of Plant Breeding (Gilbert and Bailey), Plant Breeding (Davenport), The Mutation Theory, Species and Varieties (DeVries).

610. Thesis: Students who expect to make their major work in horticulture are required to select a thesis subject not later than October 1st.

ENTOMOLOGY AND ZOOLOGY.

PROFESSOR HINDS.
ASSISTANT PROFESSOR THOMAS.

SOPHOMORE CLASS.

701. Zoology: A general course in zoology is required of all sophomore students in agriculture. The course is given in the first and second terms, and includes a brief discussion of the relation of animals to plants and minerals, the nature of cells, the functions involved in life processes and of the classification and distribution of animals. The different animal groups are studied, beginning with the single celled animals, and leading gradually to the most complex forms. *Lectures, two hours; laboratory four hours, first and second terms.*

Text: Hegner's College Zoology. A laboratory fee of $1.00 is charged to pay the cost of material and laboratory sheets.

SENIOR CLASS.

702. Entomology: In accordance with the catalogue requirements the work in Entomology is taken by all senior students electing an agricultural group of courses, and by the

special two-year agricultural students during their second year. In addition to this senior work, the subject is open to post-graduate students, who have completed the senior course satisfactorily, as an elective course leading to the degree of Master of Science. The senior work is given during the fall and spring terms only, while the post-graduate work continues during the college year.

The senior courses are designed to familiarize the students who anticipate engaging in agricultural work with the most important general facts of entomology, including studies on the structure of insects as applied to their identification; a systematic examination of the different groups, and of the most common insect pests of each group, with methods for their control.

703. A series of lectures on bees and beekeeping is given, and demonstration of modern methods in manipulation of bees is afforded by the college apiary.

Others topics considered are:

The chemistry, preparation and application of insecticides, their merits and defects; tests for detecting adulterations; comparative tests of nozzles and other apparatus. The importance of improved methods of agricultural practice is shown and their effectiveness as controlling factors for insect pests is explained.

Methods in the collection, mounting and preservation of insect specimens are also studied, the student being required to make a systematic collection in the fall and in the spring an economic collection of the pests most closely related to the future occupation of the student. A laboratory fee of $1.00 is charged for material. *Lectures, three hours; laboratory two hours, first and third terms.*

ANIMAL HUSBANDRY.

PROFESSOR TEMPLETON.
ASSOCIATE PROFESSOR FERGUSON.
ASSISTANT WELLS.

Instruction in this department is given in the class room, in the laboratories, and upon the animal husbandry farm with the live stock. While lectures are given on judging animals, the instruction does not stop with the lectures; the students are taken to the barn and feed lots where the animals are placed before them and each student is required to make a written report concerning the animals. Class-room work in dairy instruction is supplemented, strengthened, and made practical by requiring each student to work in the dairy lab-

oratory where butter is made, where Babcock test is used, where the lactic acid in cream is determined, etc. In the senior year, trips are made to cities, state and county fairs, and farms to study live stock judging and management. The live-stock provided by the college for the students use in studying breeds and judging consist of pure bred herds of Angus, Hereford, Shorthorn and Jersey cattle; Duroc-Jersey and Berkshire swine. Percherons, light horses and mules are available for class work.

The department now has the complete herd books of practically all the leading breeds of live stock in America. By the use of these the student is enabled to inform himself in regard to all pedigrees and to study the different scales of points which the breeders have adopted to represent the highest types of the various breeds. All class room instruction is given by means of text-books and lectures. Many of the lectures are illustrated by the use of a baloptican.

The courses in this department may be grouped under five main heads:

(1) Judging of live stock; (2) breeding of live stock; (3) feeding of live stock; (4) management of live stock; (5) dairying.

The student is given an opportunity to specialize in animal husbandry throughout the junior and senior years. The courses are as follows:

SOPHOMORE CLASS.

802. Judging beef cattle: The object of this course is to make the student familiar with the various classes and grades of cattle recognized by the leading stock markets, and to familiarize him with the leading beef breeds. Instruction is given by lectures, the use of the score card, and by comparative judging. *Laboratory, two hours, first term, M.* 2-4.

803. Judging dairy cattle: The student is familiarized with the dairy types and breeds, and is given judging instruction by the employment of the same methods as used in beef cattle judging (802). *Laboratory, four hours, second term, M.* 2-4, *W.* 2-4.

JUNIOR CLASS.

804. Dairying: The study of the secretion, character, composition, and production of milk, is made; proper methods of handling milk and cream for consumption, pasteurizing. sterilizing. The students are given thorough work in using the Babcock test and the lactometer, and the lactic acid test, together with the ordinary tests for the purity of milk and its adulterants. They are also drilled on all the phases of butter-making and standardizing milk and cream. Familiarity with

the construction, care and operation of the leading makes of cream separators, and other dairy equipment, is required. *Lectures, two hours; laboratory, two hours, first term, Tu., Th.* 9-10; *W., Th.* 2-4.

805 Swine judging: Considerable time is given to the study of the market classes of grades and the leading breeds of lard and bacon types of hogs adapted to southern conditions. The lecture work is followed by the students using the score card and doing comparative judging. *Laboratory, four hours, second term, W.* 2-4; *Th.* 11-1.

806. Sheep judging: The student is instructed in the methods of judging sheep, considering the market classes and grades, and the characteristics of the principal breeds. *Laboratory, two hours, third term, Th.* 2-4.

806 (a). Advanced stock judging: This course is for junior agricultural students who are especially interested in live-stock judging, and is a prerequisite to making the intercollegiate stock judging team. No college credit is given. *Hours to be arranged, latter half second term and the third term and first half following fall term.*

SENIOR CLASS.

807. Principles of animal breeding: The lectures of this course will embrace the principles and practices involved in the improvement of the domestic animals. The subjects of reproduction, variation, selection, heredity, line breeding, in-breeding, cross breeding, grading-up, etc., will be discussed in their relations to practical breeding problems. *Lectures, two hours, first term, M., W.* 8-9.

808. Advanced feeding: This course consists of lectures, supplemented by reference reading, upon the most profitable methods of producing, finishing and marketing, pork, beef, and mutton. The various concentrates and roughages are discussed as to their importance and efficiency as feeds for horses, mules and dairy cattle. *Lectures, three hours, entire session, M., W., F.* 10-11.

809. Meats: This consists of a study of the structure and composition of meats, quantity, cost and food value of the various cuts of beef, mutton, and pork; exercise is also given in judging the carcasses of the different classes of animals. A study is made of how the home-dressing and home-curing of pork is carried on. Lectures are given upon the effect of feeding and breeding of the different animals as affecting the value of the carcass and the quality of the meat. *Laboratory, two hours, second term, F.* 2-4.

810. Poultry: In this course an effort is made to acquaint the student with the different types of poultry with relation

to their use and value on the farm. Instruction is given also in feeding, managing, housing, and judging poultry. *Lectures, two hours, third term, M. W.*, 8-9.

811. Judging horses and mules: Lectures and laboratory work are given in the judging of the various classes of horses and mules which are adapted to Alabama conditions. *Laboratory, two hours, second term, M.* 2-4.

812. Live stock management: The raising of horses, cattle, sheep, and swine as a business, is discussed in full detail, featuring the care and management in production and marketing. A study is made of the methods used by the most successful stock farmers. Practical work is given in preparing stock for shows and sales. This course will be limited to, and required of students majoring in animal husbandry. *Lectures, one hour; laboratory, two hours, entire session, Th.* 8-9; *Tu.* 2-4.

813. Herd book study: This includes a study of the various herd books with the view of becoming familiar with the pedigrees of the leading strains and families of the different breeds of livestock. Emphasis is made on the methods and rules of registration for each of the breeds of livestock. The rules and regulations governing the importations of livestock into the United States and into Alabama, together with the rules and regulations governing the moving of livestock within the United States and Alabama are studied. *Lectures, two hours, second term, M., W.* 8-9.

814. Dairying: This course is outlined to meet the requirements of the senior veterinary students and is similar to course 804. *Lectures, one hour; laboratory, two hours, second term, F.* 11-1.

Special Two-Year Course in Agriculture.

FIRST YEAR.

815. Dairying: A separate course in this subject giving special attention and instruction for the benefit of the two-year students in agriculture, is maintained. The student is familiarized with the butter fat tests, the use of the lactometer, determination of the lactic acid in milk, churning, cream separation, etc. Practice is also given in determining the various common adulterants of milk. *Lectures, two hours; laboratory, four hours, first term, W., F.* 8-9; *Tu., Th.* 2-4.

816. Live stock feeding: This course is offered for the benefit of the first-year veterinary students, and the first-year special agricultural students. The food requirements of the animals' bodies are briefly considered. All through this course the practical, rather than the scientific side of feeding is emphasized. Special reference is made to feeding horses and dairy cattle. Veterinary students are allowed to discontinue

this subject at the middle of the second term. *Lectures, two hours, entire session. First term, Tu.* 8-9; *Th.* 10-11; *second and third terms, M., Th.* 8-9.

817. Live stock management: This course, also, is for the first-year veterinary students, and the first-year special agricultural students. It consists of a series of lectures on the care, housing, and management of horses, cattle, swine. and sheep. *Lectures and laboratory, three hours, latter half of second and the third term, Tu.* 10-11; *W.* 2-4.

818. Dairy cattle judging: The second term is devoted to judging dairy cattle, in the place of the course in dairying. A detailed study of the several different breeds of dairy cattle is made, and their chief distinctive characteristics pointed out. Exercises in practical judging are given by the use of the score card and by comparative judging at the barns. *Laboratory, four hours, second term, Tu., Th.* 2-4.

819. Judging beef cattle: In this course the student is familiarized with the leading breeds of beef cattle, and a study of the conformation of each type is made by practical judging. *Laboratory, two hours, third term, Tu.* 2-4.

SECOND YEAR.

820. Judging horses and mules: A special course of judging is maintained for the second year special students in agriculture. The various types of horses and mules and the market classes are studied. Representatives of the different classes are brought before the students who are, by detailed study, given an opportunity to become thoroughly familiar with each of them. *Laboratory, four hours, first term, M., W.* 10-12.

821. Poultry: This course in poultry consists of the study of the types and breeds; the housing, feeding and caring for all classes and ages. From time to time hours are spent in judging. *Lectures, two hours, first term, M., F.* 12-1.

822. Swine judging: This course is a continuation of the course of judging begun in the second year by the study of horses and mules. The leading breeds of swine are kept at the station barns, and the student has ample opportunity to become thoroughly familiar with each. The difference in function and conformation between the lard and bacon types, and the scrubs or natives, is pointed out. A study is made in practical judging by the use of the score card, and by comparative judging. *Laboratory, four hours, second term, M., W.* 2-4.

823. Meats: This course includes a study of the effects of various feeds on the meat and lard of hogs, and other animals; finishing stock for slaughter; slaughtering; dressing and curing of the meat. In the laboratory work the student is required

to put into practice the methods taught. *Lecture, two hours; laboratory, two hours, second term, Tu.* 9-10; *F.* 2-4.

824. Principles of breeding: A course of study of the principles of breeding live stock, giving special attention to the problems of the practical breeder. Much attention is given to fecundity, inbreeding, cross-breeding, grading-up, and inheritance. Variation; its causes and benefits are studied. *Lectures, two hours, third term, Tu.* 8-9; *F.* 12-1.

825. Sheep judging: A course is given to make the student thoroughly familiar with the leading breeds of sheep, their conformation and uses. *Laboratory, two hours, third term, F.* 10-12.

SCHOOL AGRICULTURE.

JUNIOR AND HOME ECONOMICS EXTENSION DEPARTMENT.

L. N. DUNCAN.
J. C. FORD.
I. B. KERLIN.
MARY FEMINEAR.
MARY E. KEOWN.
* MARJORIE PRICE CAMPER.

This department was created July 1, 1914, and is a part of the agricultural extension work conducted in Alabama by co-operation between the College and the United States Department of Agriculture.

The special lines of work in this department are as follows:

Organization of boys' corn clubs.
Organization of boys' pig clubs.
Organization of girls' canning clubs.
Home demonstration work for farm women.
Poultry clubs.
Movable schools of agriculture.

* In co-operation with the Alabama Girls' Technical Institute, Montevallo, Alabama.

COLLEGE OF VETERINARY MEDICINE AND SURGERY

By direction of the United States Civil Service Commission and Department of Agriculture, this college has been added to the list of accredited veterinary colleges, and placed in class A.

VETERINARY MEDICINE AND SURGERY

PROFESSOR CARY.
ASSISTANT PROFESSOR MCADORY.
INSTRUCTOR WEBB.
INSTRUCTOR FERGUSON.
INSTRUCTOR SUGG.
LECTURER BAHNSEN.
LECTURER WHITE.
LECTURER MEADOR.

PHYSIOLOGY AND VETERINARY SCIENCE.

101. Physiology: The students in the special agricultural course, in all of the pharmacy courses, in the course in chemistry and metallurgy, and in the course in veterinary medicine and surgery, all study elementary physiology.

The aim of this course is to teach anatomy, histology, hygiene and sanitation. The instruction is given by lectures, demonstrations, and text-book. Text-book: Martin's Human body. (Advanced). *Two hours, entire session.*

102. Veterinary science (elective): For students in agriculture. Lectures and chemical work in the junior year. In the senior year, the student may elect, with the consent of the professor in charge, six hours in the veterinary work. The aim of the instruction given to the agricultural students is to teach such lessons as will enable them to prevent many diseases on the farm by correct sanitation. At the same time they will be instructed in the ways and means of treating and handling the common diseases of farm animals. This work will prepare them for the "first aid" treatments and emergencies as well as for the course in veterinary medicine and surgery. *Five hours, junior year; six hours, senior year.*

VETERINARY MEDICINE AND SURGERY.

The four-year course in veterinary medicine and surgery leads to the degree of Doctor of Veterinary Medicine. It has been established to meet the demand of the young men of the

South who desire to become educated veterinarians, and for students who desire to prepare for the study of human medicine.

EQUIPMENT.

The main veterinary building has an independent gas plant and a connected sewer system. It is supplied with electric lights and water. The building contains an office, two lecture rooms, a physiological laboratory, and a museum on the first floor; on the second floor are located two research laboratory rooms, a library and reading room, a large lecture room containing an incubator room, and all the necessary apparatus for pathological, histological, and bacteriological work.

A separate building is used as a house for small animals (rabbits, guinea pigs, pigeons, etc.) that are employed for experimental and demonstration work in bacteriology, histology, and physiology.

The anatomy division has a separate one-story brick building with good ventilation and extensive sky light. It is supplied with gas, water, and electric lights. The anatomy museum contains the skeletons of man, the horse, the ox, the sheep, and the pig, and models of limbs and special organs of man and the horse. It is also supplied with different lots of bones of the horse with dissected and dried limbs showing the relation and attachment of muscles. An hexagonal operating pavilion thirty-six feet in diameter is used for surgical clinic and contains a simplicity operating table. It is supplied with water and electric lights and lockers for students.

The veterinary hospital contains five box stalls, four open single stalls, an office, and feed room, on the first floor; a large room for storing hay, fodder, and feed, is found on the upper floor. The veterinary department has for its exclusive use about six acres of land divided into lots, pens and paddocks. In one of the lots are located two large sheds, having a capacity for accommodating one hundred and twenty-five cattle or large animals. These sheds are used for isolation of animals affected with infectious diseases.

HOG CHOLERA SERUM PLANT.

The hog cholera serum plant occupies about twenty-five acres of land southwest of the College grounds. Upon this are located a large two-story brick and cement serum building (76 x 30), a brick and cement virus building (30 x 36), and a large hog barn (60 x 100) with cement floor. The rooms in the virus and serum buildings are sufficiently large to admit students in the veterinary medical and agricultural courses for instruction in inoculating hogs and in the various processes in making virus and serum. Some of the veterinary medical students work every day in the serum plant and thus become conversant with sterilizing, bleeding, hypering, inocu-

lating and handling the virus, the serum and the hogs.

A well equipped slaughter house has just been completed for the use of the serum plant, the College and the town of Auburn. It is available to veterinary students for practical experience in meat inspection.

COURSES OF STUDY.

The four-year veterinary course students take six terms of work in the department of animal husbandry and dairying, two terms work in pharmacy; seven terms of work in the chemical department; two terms of work in botany, and one year's work in English. The facilities and equipment of these departments are excellent.

The veterinary course is especially strong in practical laboratory work.

1. In anatomy the work of dissection is continued through the first, second and third years. It is a well established fact that useful surgery or real anatomy can not be acquired without careful and thorough work in the dissecting room. Special stress is given to comparative anatomy of the horse, ox, sheep, pig, dog and poultry.

2. Clinical laboratory work is also required throughout the course. The clinical work comes six days in the week and the cases presented embrace mules, horses, cattle, sheep, dogs, poultry, and hogs. The variety is such as to illustrate a large number of diseases, surgical operations, and therapeutic applications.

3. The physiological laboratory is supplied with apparatus for tests and experiments in physiology.

4. The laboratory for pathology, histology, and bacteriology is extensive, and is fully fitted with the latest apparatus. This laboratory has been the outgrowth of twenty-five years of cumulative additions. The aim is to teach students to work in the laboratory rather than to memorize the printed page of the text-book.

5. In chemistry and toxicology the students work in one of the best of chemical laboratories.

6. In pharmacy the students work in practical pharmacy for five hours a week for two terms. In this they learn to recognize compounds and dispense drugs.

7. The animal husbandry department affords ample facilities for practice in feeding and judging cattle, sheep, hogs, horses and mules.

8. The dairy department gives practical laboratory work in dairy operations and in handling and feeding dairy cattle.

9. The botanical department is well equipped and gives excellent opportunity for laboratory work in poisonous and medicinal plants.

10. The subjects in the course of study are such as are

required in the leading veterinary colleges of America. The course meets the requirements of the American Veterinary Medical Association and the Bureau of Animal Industry and United States Civil Service Commission. It is the aim to have the teaching staff meet the requirements of the best standards. The length of the course is four years of nine months each.

Graduates of the College of Veterinary Medicine are admitted by civil service examination to the appointments in the service of the Bureau of Animal Industry of the United States Department of Agriculture and to the army, and also to membership in the American Veterinary Association.

DESCRIPTION OF COURSES.

FRESHMAN CLASS.

103. General Chemistry (Agr. 101): This consists of a series of lectures including a discussion of fundamental principles of chemical philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course, the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form. *Four hours in class, six hours in laboratory, entire session.*

104. Physiology: This course consists of lectures and text-book work on the actions and functions of the various organs, etc., of the human body. *Two hours, entire session.*

105. English (Ac. 102a)—Composition and rhetoric: The principles of exposition, narration and description are studied. The students are required to apply these principles in set themes once a week and in frequent exercises. As often as possible the instructor holds personal conferences with students in order to correct, assist and stimulate them. Text-book: Boynton's Principles of Composition. *Three hours, first term.*

106. English (Ac. 102b). American Literature: A survey of the history of American literature together with the study of select masterpieces. The recitations will be devoted chiefly to the discussion of the literature assigned for study, but the students will be required to master a concise history of the subject and to keep notes on both the history and the selections. Text-book: Newcomer's American Literature. *Three hours, second and third terms.*

107. Anatomy: Consists chiefly of dissections with a few lectures and reviews. It covers during this year (a) Osteology, a study of the bones; (b) Arthrology, a study of the articulations; (c) Myology, a study of the structure, form and relations,

attachments, and functions of muscles. *Ten hours, entire session.*

108. Histology: Treats of the minute or microscopic anatomy of the body. It includes fixing, imbedding, sectioning, mounting, staining and a microscopic study of cellular and inter-cellular structure of tissues. It is taught by lectures, text-books and laboratory work. *Five hours, entire session.*

109. Judging dairy and beef cattle: It includes practical exercises in judging the breeds and types of dairy and beef cattle. This work is done by the Animal Husbandry Department. *Two hours, first term.*

110. Judging swine and sheep: This embraces practical exercises in determining the good and bad points of swine and sheep. *Two hours, second term.*

111. Judging horses and mules: This consists of lectures and practical exercises in judging the various breeds and classes of horses and the classes of mules. *Two hours, third term.*

112. Clinics: This is a poly-clinic where all kinds of cases and all kinds of animals are clinically examined, studied, operated on, and treated. *Three hours, entire session.*

SOPHOMORE CLASS.

113. Embryology: A study of the development of the embryo in its various stages from the fertilized ovum to the full grown embryo, and is designed to prepare students for the study of the principles of breeding and obstetrics. *Three hours, first term.*

114. Organic chemistry (Agr. 103b): This course, though somewhat more condensed, is similar to Agr. 103 (a), with the exception that the latter portion of the course is devoted to a special study of fats, carbohydrates and proteins, with reference to their functions in the life processes of plants and animals. *Three hours, first and second terms.*

115. Anatomy: This covers (a) Internal organs; (b) blood vessels, heart, lymph vessels and lymph glands; (c) the nervous system; (d) special sense organs; (e) genito-urinary organs; (f) the foot; (g) the larynx. *Ten hours, entire session.*

116. Veterinary medicine: A course covering the internal diseases of solipeds, the horse, mule and ass. *Three hours, entire session.*

117. Clinics: Surgical, internal and external diseases of all animals in the hospital and at the poly-clinic are examined, inspected and studied and recorded by the student. *Eight hours, entire session.*

118. Bacteriology: Includes a study of the pathogenic bacteria, their classification, modes of reproduction, cultural and staining characters, habitat, methods of causing disease, etc. *Six hours, entire session.*

119. Physiological chemistry: Treats of the chemistry of

sera, globulins, proteids and the other organic bodies or compounds found in animal bodies. *Four hours, third term.*

120. Pharmacy: Treats of the physical and chemical characters of drugs, preparation of various official drugs and the compounding of prescriptions employed in veterinary practice. *Ten hours, second and third terms.*

121. Botany: A study of poisonous and medicinal plants. *Five hours, third term.*

JUNIOR CLASS.

122. Surgery: This embraces general and special surgery of domestic animals. *Four hours, entire year.*

123. Obstetrics: It embraces a study of the normal and diseased conditions of the animal body during pregnancy. *Two hours, entire session.*

124. Anatomy: Embraces the comparative anatomy of the (a) ox; (b) sheep; (c) swine; (d) dog; (e) cat; (f) poultry. *Eight hours, entire session.*

125. Botany. A continuation of No. 121: A practical study of poisonous and medicinal plants. *Six hours, first term.*

126. Veterinary medicine: Embraces a study of the special pathology, etiology, symptoms, diagnosis and treatment of internal diseases of (a) cattle; (b) sheep and goats; (c) swine. *Three hours, first term; four hours, second and third terms.*

127. Veterinary physiology: Treats of normal actions or functions of the organs and apparatus of the bodies of domestic animals in health. *Three hours, first and third terms; four hours, second term.*

128. Clinics: A study of general and special surgical and medical cases presented at the hospital and poly-clinic. *Ten hours, entire session.*

129. Infectious diseases; Embraces a study of the causes, modes of transmission, methods of diagnosis and prevention of communicable diseases of domestic animals. *Three hours, second and third terms.*

SENIOR CLASS.

130. Veterinary medicine: This course treats of the internal diseases of the (a) dog; (b) the cat; (c) poultry. *Three hours, first term.*

131. Therapeutics: A study of all materials used in disease and considers the action of these materials or drugs during health and in disease, and their application or uses in diseases. *Five hours, first and second terms.*

132. Principles of breeding (Agr. 808): Embraces the principles and practices involved in the improvement of domestic animals. The subjects of reproduction, variation, selection, heredity, grading up, etc., will be discussed in their relations to practical breeding problems. *Two hours, first term.*

133. Dairying (Agr. 814): The study of the secretion, characters, composition and production of milk is made; proper methods of handling milk and cream for consumption, pasteurizing and sterilizing are covered. Students are taught how to use the Babcock tester, the lactometer, and to test for lactic acid, for purity and adulterants. They are drilled in butter making and in standardizing milk and cream. Familiarity with the construction, care and operation of the leading makes of cream separators and other dairy equipment is required. *Four hours, second term.*

134. Feeding: Embraces the food requirements for different animals; calculations and mixing of rations, using the various concentrates, roughages, etc. *Three hours, third term.*

135. Surgery: This will be a continuation of special surgery, foot diseases and lameness. *Two hours, first term.*

136. Clinics: Includes special and poly-clinic cases in surgery, internal medicine, infectious diseases, lameness, etc. *Eight hours, entire session.*

137. Pathology: Deals with the anatomy and histology of diseased tissues and organs. The cellular and inter-cellular changes that occur in disease are studied in text-book and lectures, and in the laboratory diseased cells and tissues are examined macroscopically and microscopically. *Seven hours, first term; eight hours second term.*

138. Meat inspection: A study of the ante-mortem and post-mortem conditions of healthy and diseased animals. The decomposition, putrefaction and fermentation and adulteration of meats are studied. This course embraces lectures, text-book work and laboratory work in class room and slaughter house. Auburn now has a well-built and equipped slaughter house. *Three hours, first and second terms.*

139. Milk inspection: Includes a study of diseases of dairy cattle (tuberculosis, udder diseases, etc.,) filth, bacteria and adulterants of milk; feed, water supply, dairy barns, pens and pastures; dairy cans, buckets, bottles, wagons, pasteurizers, sterilizers, milk houses and milkers. *Five hours, third term.*

140. Parasites: This course deals with the plant and animal parasites that infest man and animals. The hosts, anatomy, classification, modes of life, life history, toxic and other effects on hosts are studied. Specimens are collected, classified, mounted or preserved. *Three hours, second and third terms.*

141. Surgical exercises: This consists of a series of practical exercises covering the most common surgical operations. *Three hours, third term.*

142. Urinalysis: This covers a laboratory course in the chemical analysis of the urine of animals. *Three hours, third term.*

143. Thesis: Every student must develop a thesis on some veterinary subject, and this thesis must contain some original investigation. *Three to four hours, entire session.*

144. Toxicology (Agr. 110e): Embraces a study of the actions of poisons on animals, and a laboratory course in the official tests for the different poisons. *Seven hours, third term.*

TEXT AND REFERENCE BOOKS.

General Chemistry—McPherson and Henderson.

Organic Chemistry—Moore.

Physiology Recitations—Martin's Human Body.

Physiology Laboratory—Fish's Elementary Exercises.

Veterinary Physiology—Smith's Manual of Veterinary Phyiology.

English—Boynton; Newcomer.

Anatomy—Sisson's Comparative Anatomy; Chauveau.

Clinical Laboratory—Clinic Note Books.

Histology—Bailey; Lectures.

Embryology—Prentiss; Bailey; Lectures.

Principles of Breeding—Marshall.

Feeding Livestock—Henry; Smith; Jordan.

Livestock Judging—Craig; Plumb; Lectures.

Dairying—Wing.

Botany—Gray; Pammel; Lectures.

Pharmacy—Stevens; Lectures.

Bacteriology—Moore; Lectures.

Pathology—Kinsley; Zeigler; Kitt, Adami.

Obstetrics—Williams; DeBruin; Fleming; Dalrymple.

General Surgery—Frohner; Moeller; Dollar; Lectures.

Special Surgery—Moeller; Merillat; Frohner; Reeks; Lectures.

Surgical Exercises—W. L. Williams.

Materia Medica and Therapeutics—Frohner; Wilcox; Winslow; Fish; Quitman.

Diseases of the Dog—Muller-Glass.

Veterinary Medicine—Law, Vols. 1, 2, 3; Moussu; Friedberger and Frohner; Huytra and Marek.

Diseases of Cattle—Dollar; Moussu; U. S. Department of Agriculutre.

Diseases of Swine—Kinsley.

Diseases of Poultry—Kaupp.

Infectious Diseases—Moore; Law, Vol. 4.

Parasites—Neumann; Law, Vol. 5; Kaupp.

Meat Inspection—Edelmann; Mohler-Eichhorn; Ostertag.

Milk Inspection—Ernest-Mohler-Eichhorn; Conn.

Lameness—LaCroix.

Toxicology—Tanner; Fish.

Urine Analysis—Fish.

Restraint of Animals—White.

Castration of Animals—White.

ORGANIZATIONS

CADET BAND.

A. L. THOMAS, Bandmaster.

Three musical organizations are maintained—the band, the orchestra, and the glee club. Membership in these organizations is open to any student who has musical talent.

The band is maintained by the college for students who desire to develop their musical ability and for those who wish to learn music. It furnishes music for all college exercises, and takes part in military manoeuvres. Regular and individual instruction is given free of charge during the first term, embodying the rudiments of music and general musical information in conjunction with the practical instruction on the instrument. Public concerts are given weekly during the second term, and engagements elsewhere are usually arranged.

A gold medal is given each year by the bandmaster to the member who makes the best record.

The orchestra is an organization for musical recreation, and members are carefully selected by the director according to their musical ability.

The glee club, comprising the quartet, chorus, and stringed instruments, is a student organization. The services of a musician are secured to assist with the instruction and training of the quartet and chorus. Two concerts are given at the college and concert tours are arranged during the second and third terms.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

D. F. FOLGER, General Secretary.

This association is regularly organized and a suite of well furnished rooms has been secured for its exclusive use. Through its weekly meetings and Bible Study Classes it exerts a wholesome Christian influence among the students.

Students are advised to unite with the association when they enter the college.

The ladies of the different churches in Auburn are organized into an auxiliary association to the Y. M. C. A. of the college.

LITERARY SOCIETIES.

There are two literary societies connected with the Institute —the Wirt and the Websterian. Each has a hall in the main building. These societies hold celebrations on the evenings of Thanksgiving day and 22nd of February.

To encourage the literary societies the trustees have directed that a medal be awarded at Commencement to the member of each society who is both efficient and regular in attendance, and who is the best debater. The method of selection is determined by the faculty.

SOCIETY OF THE ALUMNI.

The annual alumni oration is delivered by a member of the society in Langdon Hall on Alumni Day, Monday of Commencement week.

OFFICERS OF THE ALUMNI ASSOCIATION.

Walter Merritt Riggs, '93, Clemson College, S. C.....Orator
Thomas Bragg, '01, Auburn, Ala.....President
J. B. Lovelace, '14, Auburn, Ala.....Secretary and Treasurer

ENGINEERING SOCIETY.

All students in the courses of engineering and architecture are eligible for membership in the Engineering Society. Meetings are held twice a month, and the chief purpose of the society is to promote personal followship among the members, and closer affiliation with practical engineers. Prominent engineers in all lines are invited to address the society from time to time upon subjects connected with their work. At other meetings the program is supplied by the student members, thus giving opportunity for the students in one department to become somewhat familiar with the problems met with in other lines of engineering.

Suitable quarters have been provided for the society in the new Broun Engineering Hall. No regular dues are required of the members, but an occasional assessment is made to cover necessary expenses.

ARCHITECTURAL ASSOCIATION.

The Architectural Association is open to all members of the college who take work in the department of architecture. Biweekly meetings are held in the architectural library, and papers presented on subjects of professional interest, not directly covered in regular courses; the discussions that follow are always lively ones. Current articles in the technical journals are also taken up. Nothing could furnish a more striking example of the enthusiastic attitude shown by architectural students everywhere toward their chosen work, than these gatherings of the architectural association.

AGRICULTURAL CLUB.

The Agricultural Club was organized in 1907. All students interested in agriculture and the agricultural sciences are eligible for membership. The members of the Agricultural

Faculty take an active part in the work of the club. Meetings are held once a week, and an effort is made to promote interest in all lines of agriculture, to develop a spirit of good fellowship among the students of the course, and bring them in contact with prominent workers of the science as opportunity offers to present them on the regular program.

Meetings are held in the club rooms in Comer Agricultural Hall.

VETERINARY MEDICAL ASSOCIATION.

The Veterinary Medical Association was organized in 1907. The meetings are held bi-weekly in the veterinary building. Medical subjects are discussed by the members or by some invited speaker or member of the veterinary faculty. All students of the Veterinary College are eligible to membership. The objects of the association are fraternal, intellectual and cultural. The annual banquet of this association is an occasion of good fellowship for the students, faculty, and veterinary alumni.

GYMNASIUM AND ATHLETIC FIELD.

The new Alumni Gymnasium offers improved facilities for complete physical training in outdoor and indoor work. The college authorities attach due importance to the value of robust, physical health. Military drill according to the Federal Law is required of all able-bodied students, and ample opportunity is also offered for work in the gymnasium and field sports. The aim of the athletic authorities is to develop, not only a set of highly trained athletic experts in particular fields of sports, but to interest each individual student in the care and development of the body through some form of athletic activity. While, therefore, every effort is made to maintain a high standard of athletic efficiency in various representative teams, every member of the "Auburn" student body is encouraged to gratify his love for games and sports, as well as to assimilate the 'Auburn Spirit" in its intensest form; a spirit splendidly exemplified by the Alumni in making possible this handsome Gymnasium. This beautiful athletic home ranks "Auburn" as one of the best equipped colleges in the land for the development of the physical welfare of its students. Under present conditions it is possible for two thousand students to take physical exercise at the same time.

DRAKE FIELD—A new athletic field, named in honor of the Surgeon, Dr. J. H. Drake, has been provided for baseball, football, and track athletics. It is situated on the experiment station grounds near the gymnasium. It will be gradually beautified and equipped with necessary buildings and accommodations.

DISCIPLINE REGULATIONS.

The government of the college is administered by the president and faculty in accordance with the code of laws and regulations enacted by the trustees.

Each student upon entering is required to sign his name in the matriculation book and pledge himself to obey the rules and regulations of the college.

All students are required to wear the prescribed uniform.

Attention to study and punctuality in attendance on recitations and all other duties are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using or causing to be brought into the college limits, intoxicating liquors.

Students are not permitted to participate in any public entertainments, or games, without previously obtaining the consent of the faculty.

No student will be permitted without the approval of his parent or guardian, to take part in a public game of football.

No student who has failed in two or more subjects will be permitted to be absent from college for athletic contests or other purposes.

(a) Every absence from recitations or examination is graded zero.

(b) When the grade of a student is lowered by reason of absence, for which satisfactory excuse can be rendered, a special re-examination may be subsequently granted, and the grade made on the special re-examination alone is substituted for that previously received.

(c) Only sickness, as reported by the surgeon, or absence by reason of family sickness, or official or collegiate business, will constitute a satisfactory excuse for granting a re-examination.

When a student is called away from college by his parents for reasons other than those specified above, his zeros for absence are not removed.

A student who, on surgeon's certificate, is excused from any subject will be required to substitute other work approved by the faculty.

The term grade of a student is the average of his daily sessional and term examination marks, found by giving due weight to the term examination.

Only privates of the senior class in full standing who are candidates for graduation may be excused by the president from all military drills, and also students over twenty-one years of age *at the time of entering college* that are permitted to devote their time to one special study, as chemistry, agri-

culture, pharmacy, or engineering, provided the time devoted to drill is spent by them in laboratory work.

No student can remain an officer who receives during the session more than one hundred demerits.

BOARDING.

The students board at Smith Dining Hall or with families of the town of Auburn, thus enjoying all the protecting and beneficial influences of the family circle.

For each house an inspector is appointed, whose duty it is to report those who are guilty of any violation of order. The report of the inspector is made to the commandant at stated intervals.

Students, after selecting their boarding houses, are not permitted to make changes without obtaining permission from the president, and this permission is given only at the close of a term, except for special reasons approved by the parent.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the senior class are exempt.

The drills are short, and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students, unless excused on the written request of parents for religious scruples, are required to attend these exercises, and also to attend the church of their choice on Sunday morning.

Opportunities are also offered for attending Bible classes every Sunday.

DISTINCTIONS AND HONORS.

Certificates of highest distinction and of distinction are given on the basis of credits, one credit being considered as the equivalent of one recitation per week for one term. Two hours of laboratory or shop work or drawing are counted as one hour of recitation. An undergraduate student taking less than an average of eighteen credit hours per term will not be eligible for distinction. Certificates will be awarded to those students who have not received more than forty demerits, and who comply with the scholarship requirements announced by the faculty.

Members of the senior class who attain highest distinction are published as *Graduates with Highest Honor;* those who attain distinction are published as *Graduates with Honor;* seniors who do not attain distinction, but who attain a grade of sixty per cent or above are published as *Graduates.*

RECORDS AND REPORTS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

At the close of each term and at regular intervals reports giving the grade made by each student are sent to the parent or guardian.

EXAMINATIONS.

Written examinations on the studies of the half-term are held by each professor during the months of October and February. Each examination occupies one hour.

At the end of each term written examinations, or written and oral, are held on the studies passed over that term.

Special examinations are held only by order of the faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examinations can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters college shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except for providential reasons.

RE-EXAMINATIONS.

Re-examinations for deficiences incurred by students before entering the senior class shall be set not later than the first week in April, except when deficiencies are being made up in class. Seniors failing in any subject will have two opportunities for removing the conditions.

No senior who fails on two final examinations will be re-examined.

No re-examination will be given seniors after the Saturday before Commencement.

HONOR SYSTEM.

During the session of 1910-11 the Honor System, which for years had been in effect in the higher classes, was adopted by the entire student-body of the institution, to apply to all work done in the class-room and on examinations. Under this system the student is pledged neither to give nor receive any assistance, whatsoever.

All students upon entrance subscribe to the Honor System as in force at this institution.

Proper regulations for administering the system have been adopted by the student-body.

The spirit of truth and honor, thus fostered in the examination room, is an efficient means of raising the scholarship, and tends to inculcate high ideals of honor among the students.

SCHOLARSHIPS.

The following scholarships and prizes have been established:

THE WILLIAM LEROY BROUN MEMORIAL SCHOLARSHIP OF $170, established by the Alumni Society, in memory of the late distinguished president of the Institute.

THE LIGON SCHOLARSHIP OF $170, established by Col. R. F. Ligon, Montgomery, Ala.

THE THOMAS SCHOLARSHIP OF $170, established by Judge William H. Thomas, Montgomery, Ala.

THE BALL SCHOLARSHIP OF $170, established by Mr. Fred S. Ball, Montgomery, Ala.

THE DUNKLIN SCHOLARSHIP OF $600, established by Mr. and Mrs. J. C. Street, Opelika, Ala., in memory of Prof. J. T. Dunklin, former professor of Latin in the college.

THE 1908 SCHOLARSHIP OF $150, established by the Class of 1908.

THE ALICE CARR SCHOLARSHIP OF $180, established for young women by the late Miss Alice Carr, Auburn, Ala.

THE RANSOM MEMORIAL SCHOLARSHIP OF $125 per year, established by the Alumni Association in memory of the late Prof. A. McB. Ransom, is available for students in the junior and senior classes of the course in chemistry and metallurgy.

THE JEWISH LOAN SCHOLARSHIP OF $1,000, established by a former student of the college.

A scholarship has been established for worthy musicians who are in need of assistance in defraying their college expenses.

THE HENDERSON SCHOLARSHIP OF $100, established by Judge W. L. Henderson, of Miller's Ferry, Ala.

THE SIDNEY SMITH MEMORIAL SCHOLARSHIP OF $100, established by his parents, Mr. and Mrs. Smith, Bessemer, Ala.

THE C. S. YARBROUGH SCHOLARSHIP OF $1,000, established by Dr. C. S. Yarbrough, Auburn, Ala.

The scholarships enumerated above are loan scholarships, granted to worthy young men and women, to be returned after graduation.

THE ROBERT E. LEE MEMORIAL SCHOLARSHIP OF $100, an annual donation for the son of a Confederate veteran, established

by the Children of the Confederacy of Alabama under the auspices of Mrs. Mary G. Pickens.

The above named scholarships and ten other scholarships are administered by the Alumni Society. (*For information, address J. B. Lovelace, Secretary*).

THE GRAYDON SCHOLARSHIP FUND OF $3000, established by the family of the late Augustus T. Graydon, of South Carolina, a loyal alumnus of the class of 1914.

SOUTHERN RAILWAY LOAN SCHOLARSHIP OF $1000, established by the Southern Railway in memory of the late W. W. Finley, President of the Southern Railway.

PRIZES.

THE THOMAS ESSAY PRIZE, a gold medal offered by Hon. William H. Thomas, of Montgomery, Ala., for the best essay by any undergraduate student of the college. The essay must be written under the supervision of the department of English.

THE SOUTHERN INTERCOLLEGIATE ARCHITECTURAL COMPETITION in Senior Design is held in the Spring of each year by an association composed of the leading colleges of the South offering courses in architecture. Funds for suitable prizes are provided by the State Chapters of the American Institute of Architects. At the close of the competition the competing drawings are exhibited in turn at each of the schools taking part in it.

THE ORATORICAL PRIZE, medal to that member of the junior class who composed and delivered the best oration on junior class day of Commencement. 1916, *Shu Min Wong*, China.

THE ORATORICAL PRIZE, for the Annual Inter-Literary Society Contest, February 22, 1916: *Lovick Pierce Hodnette*, Macon, County.

SOPHOMORE MEDAL, Best Debater, 1916: *William Herman Withington*, Jefferson County.

FRESHMAN MEDAL IN DECLAMATION for Annual contest, May 1st, 1916: *Charles Clinton Seed*, Hale County.

PRIZE FOR BEST DEBATER, a medal given annually by the Board of Trustees to the best debater in the Wirt and Websterian Literary Societies each. 1916: Wirt—*Armstrong Cory*, Jefferson County; Websterian—*Edmund Mitchell Manning*, Chilton County.

BEST DECLAIMER IN LITERARY SOCIETIES, 1916: Wirt—*Armstrong Cory*, Jefferson County; Websterian—*Verner Cyril Hanna*, Mississippi.

REGIMENTAL MEDAL, for the best drilled soldier, 1916: *Yetta Glenn Samford*, Montgomery County.

MUSIC MEDAL, 1916: *Francis Marion Taylor*, Lee County.

PRIZE FOR BEST DRILLED COMPANY, a sword given by Board

of Trustees. 1916: *Arnold Edmund Hayes*, Jefferson County.

THE R. W. BURTON PRIZE, for excellence in architectural drawing, *William Wadsworth Wood*, Jefferson County.

LIBRARY.

LIBRARIAN, JAMES R. RUTLAND.
ASSISTANT LIBRARIAN, MISS MARY MARTIN.

The beautiful Carnegie Library building is constructed of stone and pressed brick. The reading room is 80 x 40 feet, and the building is equipped with every convenience. It is lighted by electricity and heated by steam. The capacity of the stack room is sixty thousand volumes. The library now contains 28,800 volumes, including valuable reference and scientfic books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room and is thus made an important educational feature.

THE O. D. SMITH COLLECTION.

The library of the late Prof. O. D. Smith has been presented to the college by Mrs. O. D. Smith, and is preserved as a memorial to his long and distinguished services to the college.

THE F. D. PEABODY MEMORIAL ROOM.

Through the generosity of Mr. George Foster Peabody, New York City, an annual fund of fifty dollars, income from a permanent investment, is available for the purchase of books and furniture for the "F. D. Peabody Memorial Historical Seminary." F. D. Peabody, Esq., was a distinguished graduate of the Class of 1876.

THE W. D. TAYLOR MEMORIAL COLLECTION.

The engineering library of the late W. D. Taylor, chief engineer of the Chicago and Alton Railway, was bequeathed by him to the Alabama Polytechnic Institute, and is preserved by the College as a memorial to this distinguished alumnus. Mr. Taylor was a graduate of the Class of '81, and was regarded as one of the leading civil engineers of the United States.

MUSEUM.

The Mesuem occupies a large room in the third story of the Main Building. It is provided with suitable cases, and is equipped with valuable specimens and models of an instructive character.

UNIFORMS.

A uniform of cadet gray cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made by a contractor, and are of excellent cloth, manufactured at the Charlottesville mill. A suit, includ-

ing cap, costs at present $19.00. It is neat and serviceable, and less expensive than ordinary clothing.

LABORATORY FEES.

Each student in the following courses is required to pay the laboratory fee specified:

Chemical laboratory	$ 5.00
Pharmacy laboratory	5.00
Electrical engineering laboratory	5.00
Mechanical engineering laboratory	5.00
Veterinary medicine (dissecting fee)	10.00
Dairy laboratory	3.00
Soils laboratory	3.00
Horticultural laboratory	1.00
Botanical laboratory	1.50 to 2.50
Civil engineering (surveying)	1.00
Civil engineering (road materials laboratory)	1.00
Civil engineering (summer camp, including board)	18.00
Entomology	1.00
Zoology	1.00

Special students in laboratory work will pay additional fees for each separate division of work, and will be charged with all material consumed in experiments.

CONTINGENT FEE.

A contingent fee of $2.50 is required to be deposited by each student on matriculation to cover any special or general damage to college property for which he may be liable. General damages are assessed on the body of students.

At the close of the session, the whole of the contingent fee or the unexpended balance, is refunded to the student.

FUNDS OF STUDENTS.

Parents or guardians are advised to deposit with the treasurer of the college all funds desired for sons or wards, whether for regular charges, college fees or board or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands, and to pay all expenses incurred by the students, including board, uniform, books, etc.

The college cannot be held responsible for the expenses of a student unless the funds are deposited under specific instructions from the parent or guardian to the treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble, and encourages idleness.

NON-RESIDENT STUDENTS.

Tuition for students not residents of Alabama is $20.00 per session, unless remitted by the trustees to worthy students upon the recommendation of the faculty.

The remission of this tuition fee to non-resident students will be granted in the form of a free scholarship for the succeeding year to those who obtain a distinction the preceding year, or who, by reason of merit, are deemed worthy.

The following non-resident students were granted, each by reason of special merit in conduct and scholarship during the session of 1915-1916 an honor scholarship, which exempted from tuition fees:

William Wallace Allen	Florida
William Lee Blanton	Florida
William Arnold Guess	Mississippi
Lewis Miller Hall, Jr.	Tennessee
Verner Cyril Hanna	Mississippi
Fredcrick Jolley Matthews	Georgia
Christopher Murray	Tennessee
Frank Wilson Parker	Kentucky
Alan Benjamin Pimm	Florida
Everett Roberts	Tennessee
Wilbur Thomas Shinholser	Georgia
Horace Arthur Smith	Mississippi
John Patrick Sullivan	South Carolina
Lamar Mims Ware	Georgia
Shu Min Wong	China

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Board, including lodging, fuel, and lights, is furnished at $14.00 to $20.00 per month.

By special arrangements with the college authorities, Mrs. M. M. O'Neal and Mr. B. T. Blasingame will accommodate students with board and lodging for $14.50 per month.

For non-residents of the State, there is a charge of tuition of $20.00 per session, payable on matriculation, in addition to the annual fees payable by all students. A student once entering as a non-resident will not be permitted to claim residence unless his parent or guardian becomes a resident or tax payer on property in Alabama. Tuition for non-residents is remitted to sons of ministers of the Gospel.

AMOUNT OF DEPOSIT.

All fees, including laboratory fees are payable on matriculation. *By order of the Trustees a matriculation fee of* $12.00 *is retained from deposits of students who withdraw. To students who withdraw after one month's residence in college only the remainder of the laundry fee and the contingent fee, less charges, may be returned; no laboratory fee may be returned; after the beginning of the third term only the contingent fee may be returned.*

Fees to be paid on entrance:

Incidental	$ 5.00	
Library	2.00	
Surgeon	5.00	
Contingent	2.50	
Athletic	6.00	
Uniform	19.00	
Laundry fee for session	12.50	
For a resident of Alabama	$52.00	$52.00
Tuition non-resident		20.00
For a non-resident		$72.00

THESIS.

Each applicant for a degree is required to write and submit to the faculty a thesis, or oration and read or deliver the same at Commencement, if required by the faculty.

There may be presented with the approval of the professor in charge, a carefully written report of special work done in a laboratory, showing independent investigation and discussion of some subject.

It must be given to the professor by the first of May. The subject must be submitted for approval by January 1st.

SURGEON.

The Surgeon is required to be present at the college daily, to visit at their quarters the cadets that are reported sick, and give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering the Institute.

An infirmary has been established, and is properly equipped.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railway of Alabama.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tidewater. By statute of the State the sale of spirituous liquors and the keeping of saloons of any kind are forbidden.

ACADEMIC YEAR.

The academic year for 1917-1918 commences on Wednesday, September 12, 1917, and ends on Tuesday, June 11, 1918, which is Commencement Day.

It is divided into three terms: The first term extends from the opening of the session to December 20th; the second term begins January 2nd, and ends March 25th; the third term continues to the end of the session.

REGISTER

MILITARY ORGANIZATION

SESSION 1916-17

President
CHARLES C. THACH

Commandant
CAPTAIN FRANK W. ROWELL, U. S. Infantry,
with rank of Colonel

Surgeon
J. H. DRAKE

Bandmaster
MAJOR A. L. THOMAS

Regimental Staff.

Cadet Captain E. L. Deal, Adjutant.
Cadet Captain L. M. Ware, Supply Officer.

Regimental Non-Commissioned Staff.

Cadet Sergeant W. W. Allen, Sergeant Major.
Cadet Sergeant J. H. Hamilton, Quartermaster Sergeant.
Cadet Sergeant A. J. Kirby, Color Sergeant.
Cadet Sergeant R. E. Davis, Color Sergeant.
Cadet Sergeant W. C. McKay, Drum Major.

First Battalion.

Cadet Major W. T. Shinholser.
Cadet First Lieutenant W. R. Lassiter, Adjutant.
Cadet Sergeant J. A. Strozier, Battalion Sergeant Major.

Cadet Captains.

Company A	Company B	Company C.	Company D
G. R. Bowling	P. A. Terrell	R. H. Thach	H. P. Sparkes

Cadet First Lieutenants.

L. L. Turley	P. W. Matthews	G. A. Kaufmann	F. H. Prendergast

Cadet Second Lieutenants.

G. O. Burns			H. W. Thomason

Cadet First Sergeants.

J. H. Witherington	O. H. Schultz	W. S. Black	W. A. Guess

Cadet Sergeants.

B. A. Storey	J. B. Mayes	J. A. Peterson	W. C. Sills
J. T. Hudson	O. N. Massengale	W. L. Liddell	J. S. N. Davis
W. C. Hearn	G. B. Hawthorne	E. O. Duffey	L. H. Heyman
C. B. Crow	J. M. Sparrow		G. C. Williams

Cadet Corporals.

R. H. Turner	W. D. Kimbrough	R. S. Reed	S. A. Allen
G. A. Wright	J. W. Pruett	A. Cory	E. A. Caldwell
T. B. Chambers	C. S. Peter	E. E. Terry	F. A. Walker
E. B. Crawford	J. M. Fullan	J. P. Sullivan	A. P. McIntosh
L. E. Tisdale	C. J. Christian	H.T.Killingsworth	W. C. Edwards
E. F. Pollard	E. Collier	C. J. Murray	A. F. Alsobrook
E. C. Easter	W. L. Holmes	N. B. Sullivan	J. E. Howell
	P. W. Pelts		

Second Battalion.

Cadet Major H. M. Lewis.
Cadet First Lieutenant F. K. Simmons, Adjutant.
Cadet Sergeant W. H. Withington, Battalion Sergeant Major.

Cadet Captains.

Company E	Company F	Company G	Company H
J. P. Shaffer	R. M. House	J. C. Powell	J. M. Ward

Cadet First Lieutenants.

A. B. Pimm	R. G. Carpenter	G. E. Weber	W. L. Blanton
	A. H. Dumas		

Cadet Second Lieutenants.

J. H. Scott			H. H. House

Cadet First Sergeants.

J. T. Fowler	W. W. Sullivan	O. L. Martin	E. E. Ruffin

Cadet Sergeants.

J. C. Ard	C. E. Snead	R. T. Kanahan	S. B. Hooper
J. H. Martin	G. L. Burleson	Y. A. Elizondo	D. B. VanPelt
S. W. Hill	B. H. Brown	G. E. Burgin	T. A. Sims
E. V. Frederick	L. L. Self	J. R. Nesbitt	J. A. Shealy

Cadet Corporals.

S. J. Nadler	G. W. Duncan	V. C. Hanna	C. T. Tucker
R. C. Bradford	G. K. Miller	F. J. Matthews	J. Thomas
J. H. Drake	P. Frederick	R. L. Sparkman	C. H. Adams
J. P. Fuller	N. D. Spann	W. H. Mobley	F. H. Cutts
D. Q. McCord	W. H. Blake	J. W. Tidmore	J. M. Hall
W. R. Hall	J. R. Jackson	W. A. Pipkin	S. C. Phillips
J. M. Rainer	E. C. Johnson	A. A. Smith	
		M. D. Sanders	

THE CADET BAND

Session 1916-17

A. L. THOMAS, Bandmaster

Military Officers

J. M. Kelly.....Captain
A. L. Scarbrough.....Lieutenant
J. A. Douglas.....Lieutenant
W. C. McKay.....Sergeant and Drum Major
R. R. McAdory.....Sergeant
L. G. Duggar.....Corporal
C. M. Hurt.....Corporal

Musicians

Cornets
T. M. Brannon
J. Mcmoli
L. G. Duggar
M. E. Lasater
E. W. Freeman
A. M. Dowling

Altos
J. M. Kelly
M. B. Roberts
A. T. Levie
R. L. Webb

Baritones
W. M. Stewart
W. E. Conger
U. V. Whipple

Flute and Piccolo
J. A. Douglas

Bass Tubas
G. A. Mattison
R. L. Stevens

Clarinets
E. Hargis
A. L. Scarbrough
R. R. McAdory
R. S. Allen
M. A. Martin
H. Urdong

Saxaphones
M. G. Crosthwait
J. D. Foster
G. B. Warren
E. B. Crawford

Trombones
R. P. Simmons
J. W. Hutto
G. M. Humphries
N. Ford

Oboe
M. Greenburg

Drums
F. K. Nesbitt
C. M. Hurt

Cadets of the graduating class who were reported to the Adjutant General, U. S. Army, as having ranked highest in the Military Department:

1889	1891	1893
A. St. C. Dunstan	L. E. Baker	Joel Dumas
B. H. Crenshaw	C. C. Johnson	C. H. Smith
A. J. Burr	F. J. Bivins	J. F. Webb
1890	**1892**	**1894**
F. D. Milstead	H. F. Debbin	C. S. Andrews
J. W. Bivins	A. L. Jones	P. P. McKeown
G. W. Emory	C. L. Brown	R. L. Dorsey

1895
S. L. Coleman
H. H. Smith
L. B. Gammon

1896
A. L. Alexander
W. L. Fleming
W. M. Williams

1897
P. G. Clark
G. M. Holley
G. N. Mitcham

1898
A. H. Clark
A. McB. Ransom
John Haralson

1899
I. F. McDonnell
A. H. Feagin
T. W. Wert

1900
E. M. Mason
H. P. Powell
C. W. Nixon

1901
A. F. Jackson
J. D. Foy
P. S. Haley

1902
W. D. Willis
J. E. D. Yonge
J. B. Garber

1903
H. E. Davis
H M. Yonge
T. J. Dowdell

1904
J. McDuffie
B. L. Shi
Geo. Dunglinson, Jr.

1905
R. P. Boyd
R. H. McCulloh, Jr.
J. H. Paterson

1906
W H. Foy
F. H. Mohns
M. A. Frazer

1907
N. B. McLeod
W. L. Perdue
G. F. Lipscomb

1908
S. A. Ellsberry
C. M. Howard
R. H. Liddell

1909
J. W. Powell
S. H. Richardson
T. Beasley

1910
D. M. Clements
C. C. Yonge
J. M. Spearman

1911
J. E. Davis
J. J. Cater
G. Lothrop

1912
S R. Cruse
C. C. Thach, Jr.
F. L. Jenkins

1913
R. A. McGinty
D. L. Taylor
H. C. Hanlin

1914
R. E. Herring
W. B. Tisdale
E. F. Barry

1915
D. D. Gibson
C. A. Donehoo
W. F. Littleton

1916
E. W. Smith
C. E. Newman
A. E. Hayes

GRADUATES

CLASS OF 1916.

HONORS.

Members of the Senior Class who attain distinction with a grade of 95 per cent, are graduates with Highest Honor. Those who attain a distinction with a grade of 90 per cent, and less than 95, are Graduates with Honor. Those who attain less than 90 per cent, and more than 60 per cent, are Graduates.

DEGREES.

BACHELOR OF SCIENCE.

GRADUATES.

John Gill Anderson	Tennessee
John Dunklin Ashcraft	Lauderdale
John Tonice Belue	Lauderdale
Wyly McGehee Billing	Montgomery
Herman West Bingham	Madison
James Rosby Brown	Florida
Joseph Davenport Browne, Jr.	Tennessee
Walter Frederick Bulla	Georgia
James William Burgin	Jefferson
Robert Emmett Cammack	Clarke
John Hosmer Campbell	Clay
Robert Ezekiel Campbell	Sumter
Wilmer Huxley Carter	Florida
Kenneth Gladstone Caughman	South Carolina
Thomas William Clift	Madison
George Roy Corcoran	Russell
William Davis Crawford	Macon
Samuel Neil Crosby	Baldwin
Richard Henry Cunningham	Choctaw
William Velpeau Curtis	Lee
Berrien Walker Davis	Georgia
William Reese Dillard	Georgia
Vernon James Douglass	Jefferson
David Merrick Dowdell	Lee
Perry Jackson Edwards	Morgan
Harry Gordon Farris	Etowah
John Wilbur Freeman, Jr.	Georgia
Roland Macon Fricke	Marshall
Edward Samuel Gatchell	Lee
Werter Shipp Hackworth	Jackson
Frederick Hollis Haynie	Lee
Montgomery Lamar Howe	Lee
Andrew Orestes Jackson	Pike
Glen David Liddell	Wilcox
Robert Forney Middleton	Etowah
George Augustus Miller, Jr.	Florida
William Thomas Mills	Jefferson
James Caldwell Mohns	Jefferson
John Daniel Moore	Bullock
Sarah Evelyn Moore	Lee

Paul Sioussat McCormick.....Mobile
Laurrie Artemus McCranie.....Florida
Alva Pinkston McCrary.....Georgia
Clifford Braswell McManus.....Georgia
Lucius Rives Owsley.....Elmore
Woodie James Pace.....Calhoun
William Charles Payne, Jr.....Tennessee
Joseph Bancroft Perry.....Jefferson
Wilton Burton Persons.....Montgomery
George Arthur Pfaffmann.....Lee
Frank Poole.....Butler
Myrt Warren Pouncey.....Escambia
Osie Clyde Prather.....Lee
Thomas Christopher Rives.....Montgomery
James Thomas Roberts.....Marshall
Otto Meinhardt Schomburg.....Georgia
Ernest Slager.....Tennessee
George Roysce Smith.....Geneva
Percy Reynolds Smith.....Jefferson
George Henry Stewart.....Coosa
Carl Laten Stuckey.....Mississippi
Francis Marion Taylor.....Lee
John Ewing Taylor.....Butler
Junie Marcus Thomason.....Lamar
Edward LeRoy Tuttle.....Houston
Edwin Adolphus Wagner.....Texas
Russell Fleming Walthour, Jr.....Lee
George Lawrence Washington.....Cuba
James Davis Williford.....Lee
William Wadsworth Wood.....Jefferson
John Garland Woodall.....Jackson
Oliver Eubert Young.....Choctaw
Michael Vernon Zimmerman.....Jefferson

GRADUATES WITH HONOR.

James Warren Andrews.....Montgomery
Hayne Coker Appleton.....DeKalb
Richmond Young Bailey.....Chambers
William Alexander Burns, Jr.....Talladega
Lee Irwin Davis.....Mobile
Posey Oliver Davis.....Limestone
Robert Dennis.....Pike
Ambrose Camp Duggar.....Lee
Arnold Edmund Hayes.....Jefferson
Edmund Mitchell Manning.....Chilton
Claude Mortimer McCall.....Escambia
Emile Nelson.....Mobile
James Goggins Peterson.....Coosa
Frederick Gordon Sholes.....Jefferson
Edward Ward Smith.....Lee
Samuel Andrew Wingard.....Montgomery

GRADUATES WITH HIGHEST HONOR.

Herbert Lee Evans.....Hale
Henry Lord Page King.....Georgia
George Lampros.....Montgomery
Cyrus Edson Newman.....Coosa
Louis Truitt Wells.....Pickens
Jesse Jay Williams.....Clarke

GRADUATES IN PHARMACY (PH. G.)

GRADUATES.

John Robert Argo	Coosa
Preston Holcomb Cannady	Clarke
Troy Lawless Carter	Perry
Jeffries Nathaniel Dubberly	Lee
Merritt Knight	Wilcox
Albert Young Masters	St. Clair
John Elijah Norman	Lowndes

GRADUATE WITH HONOR.

Osie Columbus LaGrone	Dallas

PHARMACEUTICAL CHEMIST (PH. C.)

Homer Samuel Gentry	Bibb
Thomas Richard Nash	Shelby

GRADUATES IN VETERINARY MEDICINE (D. V. M.)

Charles Ray Adams	Clarke
Roy Avant	Coosa
Joseph Roland Ballow	Marengo
James Wyatt Boyleston	South Carolina
George L. Breeden, Jr.	Dallas
Ernest Will Bryan	Lee
Forrest Eugene Butler	Crenshaw
Irwin Roland Cooper	Marengo
Archie Lee Faulk	Geneva
Legrand Jones Hargett	Lee
George Douglas Ingram	Lee
Burrell M. Johnson	Marengo
Alto Lee Johnson	Pike
Benjamin Franklin Jones	Wilcox
Joseph Ernest Kendrick	Dallas
Edwin Doc King, Jr.	Wilcox
Samuel Jones Rayfield	Coosa
Richard Kinion Roberson	St. Clair
Walter Stancel Robertson	Tennessee
Willis Charles Roycroft	Mobile
George Ellis Taylor	Jefferson
Thomas Mitchell White	Fayette
Edgar Eldred Williams	Elmore

POST GRADUATE DEGREES.

MASTER OF SCIENCE.

Samuel Faucett Anders	Tuscaloosa
William Emmett Ayres	Lamar
Jackson Frederick Bazemore	Coosa
Frances Alexander Duncan	Lee
Arturo Enrique Elizondo	Mexico
Benjamin Ellsworth Evans	Lee
James Baxter Jackson	Lee
Robert Brice Johnston	South Carolina
Lee Eugene Kimball	Lee
Edmund Clark Leach	Tallapoosa
Herbert Marshall Martin	Florida
Carl Dent Montgomery	West Virginia
Emery Tyler Motley	Randolph
Pierce R. V. Pettis	Clarke
Frances Victoria Steele	Lee

Hassie Earl Terrell.....Lee
Homer Bernard Tisdale.....Conecuh
Wilton Wendell Webb.....Lee
Felix Branyon White.....Marion

PROFESSIONAL DEGREES IN COURSE.

CIVIL ENGINEER.

Clyde Augustus Donehoo.....Blount
Joel Phillip Melvin.....Tennessee

ELECTRICAL ENGINEER.

Julius Albert Fincken.....South Carolina
David Adolphus Gammage.....Barbour
Cosette Woodley Harrison.....Montgomery
William Ware Palmer.....Lee
Ransom Davis Spann.....Montgomery
Albert Weaver.....Escambia

MECHANICAL ENGINEER.

Lorenza Daniel Morgan.....Dallas
William Lemuel White.....Marion
Frank Whitaker Wilmore.....Lee

ENGINEER OF MINES.

Charles Hereford Gilmour.....Jefferson
George Alston Kellum.....Shelby

DEGREES FOR PROFESSIONAL WORK.

CIVIL ENGINEER.

Andrew Johnstone Hawkins.....Jefferson
Walter Wier Johnston.....Etowah

ELECTRICAL ENGINEER.

Clarence Edward Mohns.....Georgia

MECHANICAL ENGINEER.

Jack Lawrence Orr.....Jefferson

DISTINGUISHED STUDENTS

SESSION 1915-16.

Students who receive a grade of above 90 per cent, and less than 95 in three studies in the Freshman Class, in four in the Sophomore Class, five in the Junior, and in six in the Senior, are distinguished for excellence in scholarship, and are awarded Certificates of Distinction. Those who receive a grade above 95 per cent, are awarded Certificates of Highest Distinction.

FRESHMAN CLASS.

DISTINCTION.

Roland Lee Adams.....Clarke
Roger William Allen.....Jefferson
Simeon Arthur Allen.....Shelby
Costa Boone Barker.....Cleburne
Ollie Clifton Bryan.....Coffee
Thomas Browning Chambers.....Limestone
Armstrong Cory.....Jefferson
Eugene Benson Crawford.....Macon
James Hodges Drake.....Lee
Llewellyn Goode Duggar.....Lee
George Webster Duncan, Jr.....Lee
James Douglas Foster.....Lee
John Peyton Fuller, III.....Madison
Lewis Miller Hall, Jr.....Tennessee
William Robert Hall.....Jefferson
William Duke Kimbrough.....Wilcox
Frederick Jolly Matthews.....Georgia
Willard Mitford Mobley.....Jefferson
Bruce William Murray.....Mobile
Christopher Murray.....Tennessee
Jefferson William Pruett.....Coosa
Russell Sage Reed.....Etowah
Everett Roberts.....Tennessee
Horace Arthur Smith.....Mississippi
John Patrick Sullivan.....South Carolina
Marvin Taylor.....Marion
Emmett Edwin Terry.....Madison

HIGHEST DISTINCTION.

Verner Cyril Hanna.....Mississippi
Solomon Joseph Nadler.....Etowah
Cyril Theodore Tucker.....Mobile
Roy Hope Turner.....Tallapoosa
George Alfonso Wright.....Lee

SOPHOMORE CLASS.

DISTINCTION.

William Wallace Allen.....Florida
Linney Leonidas Childree.....Dale
James Thomas Fowler, Jr.....Houston
William Arnold Guess.....Mississippi
Robert Lapsley.....Dallas
Oliver Norfleet Massengale.....Elmore

Otto Henry Schultz, Jr.----------Jefferson
Laura Watt----------Lee
James Henry Witherington----------Conecuh
William Herman Withington----------Jefferson

JUNIOR CLASS.

DISTINCTION.

William Lee Blanton----------Florida
Ernest Linwood Deal----------Tuscaloosa
Daniel Andrew Helmich----------Jefferson
James Roy Hines----------Chambers
Henry Harris House----------Etowah
Charles L. Isbell----------DeKalb
Alan Benjamin Pimm----------Florida
James Frederick Pruett----------Russell
Lamar Mims Ware----------Georgia
George Egbert Weber, Jr.----------Lee
Shu Min Wong----------China
Gordon Worley----------Tallapoosa

HIGHEST DISTINCTION.

Phares Wood Matthews----------Jefferson
Wilbur Thomas Shinholser----------Georgia

SPECIAL STUDENTS.

DISTINCTION.

John A. Chancellor----------Cherokee
John Hart Fussell----------Geneva
Clarence Reuel Hartsock----------Mobile
Thomas Maury Leslie----------Etowah
John Herbert Murray----------Escambia
Edward Penn McGee----------Tuscaloosa
Charles George Yarbrough----------Monroe

HIGHEST DISTINCTION.

Frank Wilson Parker----------Kentucky

CATALOGUE OF STUDENTS

SESSION 1916-1917.

GRADUATE STUDENTS.

James Warren Andrews.....Montgomery
Robert Emmett Cammack.....Clarke
Robert Ezekiel Campbell.....Sumter
Thomas William Clift.....Madison
Lee Irwin Davis.....Mobile
Harry Gordon Farris.....Etowah
Roland Macon Fricke.....Marshall
Edward Gatchell.....Lee
Charles Hereford Gilmour.....Jefferson
George Lampros.....Montgomery
Frank Kitchell Nesbitt.....Jefferson
James Goggins Peterson.....Coosa
Percy Reynolds Smith.....Jefferson
Philip Nicholas Sowell.....Escambia
Russell Fleming Walthour, Jr.....Lee
Samuel Andrew Wingard.....Montgomery

SENIOR CLASS.

Saul Perry Adelson.....Jefferson
Irvin Gravely Ammon.....Jefferson
Glenn Andrews, Jr.....Montgomery
William King Askew.....Marengo
Thomson William Bailey.....Jefferson
Hammond Dudley Baker.....Lee
William Watson Barron.....South Carolina
Harrison Bates.....South Carolina
Carl Lee Beall.....Crenshaw
Theodore Russell Benning.....Georgia
Walter Gustavus Bevill, Jr.....Hale
William Lee Blanton.....Florida
George Randolph Bowling.....Tallapoosa
Howard Milton Boyd.....Lee
William McClellan Bruce.....Wilcox
Cyril Kenneth Bryan.....Blount
Frate Bull.....Marion
Hugh Otis Burgess.....Cleburne
Francis William Burns.....Clay
Guy Olney Burns.....Lauderdale
Charles Cleveland Bush.....Talladega
Hugh William Caffey.....Jefferson
Colonel Richard Carnes.....Marion
Roy Gatman Carpenter.....Marion
Abner Boone Chapman.....Covington
James Arthur Chappell.....Jefferson
Fred Victor Cluis.....Georgia
William Worth Corcoran.....Russell
Mary Glenn Crenshaw.....Lee
Ernest Linwood Deal.....Tuscaloosa
Lewis Battle Dean.....Tallapoosa
Leo Donovan.....Dallas
John Andrew Douglas.....Mobile
Albert Hugh Dumas.....Lee
Julius Eagle.....Dallas

Annalee Edwards.....Lee
Harrison Bartow Emerson.....Etowah
Seth Jordan Floyd.....Lee
Gordon Green Ford.....Franklin
Joseph Marshall Foulks.....Louisiana
Loraine Walker Funk.....South Carolina
Joseph Best Grimsley.....Georgia
Henry Haigler.....Jefferson
Daniel Andrew Helmich.....Jefferson
Edward Beverly Henry.....Lee
James Edwin Hickey, Jr.....Montgomery
James Roy Hines.....Chambers
Lovic Pierce Hodnette.....Macon
Daniel Webster Hollis.....Henry
Henry Harris House.....Etowah
Ray Milton House.....Calhoun
William John Howard.....Montgomery
Charles L. Isbell.....Lee
William Jesse Isbell.....Lee
William Schloss Jacobs.....Georgia
Leon Ledyard Jeffrey.....Wilcox
John William Johnston.....Blount
Thomas McDonald Jones.....Coosa
Thomas Jefferson Jordan.....Marshall
George Allard Kaufmann.....Louisiana
James Marion Kelly, Jr.....Georgia
Captain Tullis Knight.....Barbour
William Robert Lassiter.....Lee
Hester Marion Lewis.....Bibb
Phares Wood Matthews.....Jefferson
George Rufus Mays.....Marion
Samuel Douglas Melanson.....Louisiana
James Foy Middlebrooks.....Barbour
Leslie Bateson McCoy.....Escambia
Thomas Turner McLemore.....Jefferson
Oscar L. McMurray.....Franklin
Lawrence Marvin McRae.....Chambers
James Kirk Newell.....Tallapoosa
William Wyman Owens.....Pike
Alan Benjamin Pimm.....Florida
John Carew Powell.....Montgomery
Homer Prendergast.....Texas
William Thomson Price.....Tuscaloosa
Bryan Pritchett.....Clarke
James Frederick Pruett.....Russell
Dibble Manley Rickenbaker.....South Carolina
Walter Hugh Roberts.....Baldwin
Joe Posey Robertson.....Fayette
Carey Carlisle Robinson.....Lee
Atlee Davis Sample.....Morgan
Abb Llewellyn Scarbrough.....Calhoun
John Hadley Scott.....Tennessee
Edward Noble Scoville, Jr.....South Carolina
Harry Berry Seybt.....South Carolina
John Parker Shaffer.....Tallapoosa
Sylvester Guinn Sharit.....Jefferson
Wilbur Thomas Shinholser.....Georgia
James Edgar Shotts.....Marion
Frank King Simmons.....Florida
Augustus Hoke Sloan.....South Carolina
Harry Peckham Sparkes.....Jefferson

William Augustus Stickney.....Calhoun
Eunice Rebecca Stodghill.....Lee
Phillip Avary Terrell.....Lee
Richard Hartwell Thach.....Lee
Herbert Wright Thomason.....Lee
John Earle Thomason.....Lamar
Ira Asa Thompson.....Pike
Henry Philip Trawick.....Lee
Lovell Lack Turley.....Missouri
Conrad Gray Wall.....Jefferson
Alfred Benjamin Walter, Jr.....Louisiana
John Meriwether Ward.....Greene
Lamar Mims Ware.....Georgia
Charles Spencer Warren.....Montgomery
Jesse Jordan Warren.....Montgomery
George Egbert Weber, Jr.....Lee
James Wallace Whatley, Jr.....Lee
Wheeler Williams, Jr.....Russell
Shu Min Wong.....China
David A. Woodard.....Louisiana
Gordon Worley.....Tallapoosa
Barbara Wright.....Lee

JUNIOR CLASS.

William Wallace Allen.....Florida
Jerome Cochran Ard.....Dale
James Oliver Avery.....Marion
Marion Russell Avery.....Franklin
William Henry Avery.....Marion
James Arthur Bates.....Chambers
Julian Dumas Beard.....Choctaw
Walter Steele Black.....Limestone
Madison LeRoy Bonner.....Clay
Thomas Herbert Bonner.....Clay
Jesse Samuel Burbage.....Jefferson
George Larkin Burleson.....Marion
Ralph Akin Carroll.....Lee
Herschel Jackson Daniel.....Georgia
John Stephen Neal Davis, Jr.....Georgia
Ralph Emerson Davis.....Georgia
Richard Joseph Ducote.....Mobile
Elmer Odell Duffey.....Jefferson
Yndalcio Andres Elizondo.....Mexico
Roy James Ellison.....South Carolina
McKendree Heard Floyd.....Lee
James Thomas Fowler, Jr.....Houston
James Tarver French.....Pike
Benjamin Bradley Fuqua.....Lauderdale
William Arnold Guess.....Mississippi
Joseph Henry Hamilton.....Jefferson
George Boltz Hawthorne.....Wilcox
B. H. Haynes, Jr.....Clay
William Caesar Hearn.....Macon
Lewis Harris Heyman.....Tennessee
Samuel White Hill.....North Carolina
Sidney Bowie Hooper.....Marshall
James Thomas Hudson, Jr.....Tennessee
Robert Marvin Hudson.....Clay
David Charles Jimmerson.....Lee
Elizabeth McTyeire Johnson.....Lee
Lucius Wiley Johnson.....Tuscaloosa

Robert Thomas Kernahan.....Colbert
Albert Johnson Kirby.....Jackson
Benjamin Terrell Kirby.....Georgia
Augustus Theodore Levie.....Coosa
Will Lithgow Liddell.....Wilcox
James Hunter Martin.....Limestone
Oscar LaFayette Martin, Jr.....South Carolina
Oliver Norfleet Massengale.....Elmore
James Belser Mayes, Jr.....Georgia
Robert Lee Miller.....Walker
Harold Anderson Milliken.....Jackson
Richard Rose McAdory.....Jefferson
Walter Littleton McArthur.....Geneva
William Cook McKay.....Montgomery
Olin Coke Newell.....Tallapoosa
Ellison Avery Phillips.....Clay
William Henry Philpot, Jr.....Macon
Herman Shelby Price.....Madison
Henry Leland Reynolds.....South Carolina
Herbert Balshaw Rigby.....Georgia
Hickman Riley.....Coffee
Milton Boyd Roberts.....Greene
William Johnston Ross.....Calhoun
Emory Echols Ruffin.....Shelby
John James Ryan.....Tennessee
Otto Henry Schultz, Jr.....Jefferson
John Andrew Shealy.....Louisiana
Albert Edward Sheridan.....Georgia
William Clem Sills.....Wilcox
Robert Paul Simmons.....Dale
Thomas Andrew Sims.....Walker
John Marion Sparrow.....Lee
Jason Weldon Spencer.....Florida
William Matthew Stewart.....Jefferson
Barckley Augustus Storey.....Talladega
Auby Casey Strickland.....Lee
John Alan Strozier.....Georgia
William Woodward Sullivan, Jr.....South Carolina
James Andrew Thigpen.....Lee
William Rufus Turnipseed.....Bullock
David Broome VanPelt.....Talladega
John Harrison Watson.....Lee
Laura Watt.....Lee
Gilmore Clark Williams.....Cullman
Allen Davidson Williamson.....North Carolina
James Henry Witherington.....Conecuh
William Herman Withington.....Jefferson

SOPHOMORE CLASS.

Charles Harris Adams.....Dale
Roger William Allen.....Jefferson
Simeon Arthur Allen.....Shelby
Adrian Fuller Alsobrook.....Chambers
David Lewis Baker.....Florida
Costa Boone Barker.....Lee
Charles Herschel Bedingfield.....Lauderdale
Kline McCageor Bentley.....Crenshaw
Wyatt Heflin Blake, Jr.....Colbert
Whitfield Newell Blankenship.....Georgia
Helen Blasingame.....Lee
Anthony Joseph Bowab.....Escambia

Harold Alfred Bowron.....Jefferson
Richard Courtlandt Bradford.....Cherokee
Thomas Milton Brannon, Jr.....Barbour
George Clyde Brittain.....Cherokee
Lyle Brown.....Choctaw
Marvin Earl Bryant.....Baldwin
Clarence Aldin Buffington.....Autauga
Europe A. Caldwell.....Jackson
Homer Carder.....Jefferson
Colon Eric Carlovitz.....Mississippi
Thomas Browning Chambers.....Limestone
Linney Leonidas Childree.....Dale
Charles Jefferson Christian.....Shelby
John Beverly Christian, Jr.....Florida
Eugene Collier.....Morgan
William Cook, Jr.....Walker
Armstrong Cory.....Jefferson
William Henry Cotton.....Georgia
Eugene Benson Crawford.....Macon
Marion Graves Crosthwait.....Jefferson
Frederick Harder Cutts.....Georgia
Robert Floyd Donehoo.....Blount
Charles Edwin Doughtie, Jr.....Georgia
James Hodges Drake.....Lee
Llewellyn Goode Duggar.....Lee
Frederick Myrick Duncan.....Georgia
George Webster Duncan, Jr.....Lee
L. B. Dunnigan.....Florida
Everette Champie Easter.....Limestone
William Correll Edwards.....Chilton
James Lawrence Elliott.....Shelby
Lemuel Carldon Faulkner.....Lamar
James Douglas Foster.....Lee
Ernest Vassie Frederick.....Marion
Phil Frederick.....Georgia
Edwin Wills Freeman.....Florida
James Michael Fullan.....Lee
John Peyton Fuller, III.....Madison
Walter Lamont Garrard.....Mississippi
Edmond Peter Garrett, Jr.....Limestone
Euel Howard Gentry.....Bibb
James Needham Gilmer.....Choctaw
William Francis Godwin.....Georgia
John Carey Goodwin.....Marshall
Leslie Craig Greene.....Georgia
Samuel Earle Greene.....Jefferson
Ivy Moore Griffin.....Clarke
Paul Stanley Grimes.....Georgia
Glynn Hightower Grisham.....Jefferson
James Madison Hall, Jr.....Bullock
William Robert Hall.....Jefferson
Wayne Willard Hall.....DeKalb
Donald Brinton Hammond.....Houston
Verner Cyril Hanna.....Mississippi
James Edwin Hillhouse.....Jefferson
DeWitt Herndon Holder, Jr.....Mississippi
Mayfield Judson Hollingsworth.....Pickens
William Louis Holmes.....Houston
John Edward Howell.....Dale
Charles M. Hurt, Jr.....Tennessee
John Ralph Jackson.....Jefferson

Charles McCoy Johnson ..... Florida
E. C. Johnson ..... Georgia
Joel Edward Johnson ..... Geneva
Arthur LaFayette Jones ..... Calhoun
Charles Alfred Jones, Jr. ..... Jefferson
Grady Whittle Jones ..... Escambia
Robert Dawson Jordan ..... Crenshaw
Archie Monroe Kearley ..... Monroe
Landon Gaines Kelly ..... Tennessee
Henry Thomas Killingsworth ..... Georgia
William Duke Kimbrough ..... Wilcox
Arthur Armon Lauderdale ..... Marion
Herman Lee ..... Bibb
Milton Paul LeGrand ..... Montgomery
James Otis Lisenby ..... Houston
William Mem Little ..... Georgia
George Ernest Lumpkin ..... Marshall
Merlin Angelo Martin ..... Mobile
Frederick Jolly Matthews ..... Georgia
George Augustus Mattison, Jr. ..... Clay
George Knox Miller ..... Florida
Willard Mitford Mobley ..... Jefferson
John Bartow Murphy ..... Talladega
Minnie Murphy ..... Macon
Christopher John Murray ..... Tennessee
Durward Quigley McCord ..... Marshall
Albert Plant McIntosh ..... Florida
James Henry McIntosh, Jr. ..... Franklin
Joseph Harlan McKinstry ..... Pickens
Forrest Whitlock McMeans ..... Jefferson
Solomon Joseph Nadler ..... Etowah
Jule Rembert Nesbitt ..... Jefferson
Earl Cochran Nichols ..... Clarke
Philip William Pelts ..... Mississippi
Marvin Lucian Perdue ..... Coffee
Capers Jones Perryman ..... Jefferson
Charles Scudder Peter ..... Shelby
Sidney Clarke Phillips ..... Mobile
Wilbur Arnold Pipkin ..... Florida
Joseph Leeve Pitts ..... Bullock
Elisha Frederick Pollard ..... Crenshaw
Jefferson William Pruett ..... Coosa
Joel Marbury Rainer ..... Bullock
Robert Freitas Redding ..... Georgia
Russell Sage Reed ..... Etowah
John Hugh Reynolds ..... Lee
Silas Clifford Rutland ..... Georgia
Leon William Segrest ..... Geneva
Leroy Lafayette Self ..... Blount
John McElroy Selman ..... Coosa
Arthur Shaver ..... Cullman
Charles Martin Shaw ..... Macon
Alma Smith ..... Lee
Angus Atkinson Smith ..... Geneva
Lansing Taylor Smith, Jr. ..... Calhoun
Curtis E. Snead, Jr. ..... Etowah
Henry Clay Snellgrove ..... Marshall
Norman Dantzler Spann ..... Houston
Roland Lee Sparkman ..... Jefferson
Charles Hall Speights, Jr. ..... South Carolina
Cohen Elbert Stapp ..... Pickens

Alexander Clifton Stewart.....Escambia
Thomas Vernon Stinson.....Cherokee
Andrew McAdams Stovall, Jr.....Walker
John Braden Suggs.....Talladega
John Patrick Sullivan.....South Carolina
Nim Belotte Sullivan.....South Carolina
Marvin Taylor.....Marion
Emmett Edwin Terry.....Madison
John Thomas.....Marengo
James Wallace Tidmore.....Hale
Franklin Osborn Tilton.....Geneva
Lionel Earl Tisdale.....Florida
Cyril Theodore Tucker.....Mobile
Roy Hope Turner.....Tallapoosa
Ross Franklin Wadkins.....Lee
Glover O'Neal Waits.....Covington
Felix Augustus Walker.....Russell
Harold Walker.....Jefferson
George Elmer Waller.....Lee
James Clarence Watson.....Geneva
William Benjamin West.....Lee
Winston Campbell White.....Sumter
Arthur Herbert Williamson.....Lowndes
George Alfonso Wright.....Lee
George Herbert Wright.....Lee

FRESHMAN CLASS.

Henry Clifton Abbott, Jr.....Jefferson
James Harvey Allen.....Calhoun
Robert Stanton Allen.....Jackson
Charles Carlisle Anderson.....Walker
Joseph Popenjoy Bailey.....Elmore
John Thomas Baker, Jr.....Pike
Daniel Garland Barnes.....Dale
Earl Daniel Bartlett.....Clay
Raymond Ruskin Beard.....Mobile
Mafus Bird.....Marengo
William David Blackwell.....Madison
Albro Edison Blake.....Lee
Thomas Lyons Bradley.....Jefferson
Oma Wesley Bridges.....Macon
Francis Brittain.....Georgia
George Clay Brown.....Lamar
Donald Jerome Bull.....South Carolina
Andrew Alonzo Burke.....Houston
William Gustus Bynum.....Blount
Hamlin Alexander Caldwell.....Jackson
Frederick William Calhoun.....Jefferson
William Alfred Cammack.....Clarke
Howard Hill Camp.....Talladega
Mortimer Garnett Cassell, Jr.....Dallas
Noah Winston Caton.....Covington
Horace Meldon Chaddick.....Tennessee
Raymond Austin Chambers.....Limestone
Jerome Chapman.....Geneva
Zachariah Christian.....Lauderdale
Arthur Bryan Clark.....Coffee
George Little Clark.....Crenshaw
Edwin Pierce Clyatt.....Lee
Clifton Cecil Cobb.....Walker
Albert Hamilton Collins.....Fayette

James Barfield Coney.....Georgia
George S. Cooper, Jr.....Sumter
John Francis Cooper.....Tuscaloosa
Benjamin Coplan.....Jefferson
Warren Crain.....Wilcox
John Paul Creel.....Jefferson
Herbert Haynes Crittenden.....Macon
Osler Gilbert Crow.....St. Clair
Marvin Trowbridge Crymes.....South Carolina
Edward Pilate Culpepper.....Henry
Thomas Micajah Culpepper.....Georgia
William Walter Culver.....Houston
Raymond Currey.....Marshall
Perry Chisholm Day.....Georgia
Richard Buey Deason.....Walker
Stuart Hubert Dent.....Barbour
John Bealie DeRamus.....Chilton
Garvey Dixon Douglas.....Walker
Guy Eldo Douglas.....Walker
Wilbur Reece Dove.....Mississippi
Augus Mancill Dowling.....Barbour
John Hodges Drake, Jr.....Lee
Owen Hunter Draper.....St. Clair
Wells Roney Draughon.....Geneva
Russell Duff.....DeKalb
Charles Wesley Edwards.....Coffee
Albert Elmore.....Marengo
Lester Lamar English.....Morgan
Lecil Verland Evans.....Lamar
Gordon Farned.....Franklin
William Baker Farrar.....Georgia
Walter Jerry Fickling.....Georgia
Charles Ewell Floyd.....Lee
George Foster.....Lee
John Thomas Frazer.....Chambers
William Williams French, Jr.....Jefferson
Robert Callaway Gaines.....Clay
William Thomas Galloway.....Madison
Junius Roach Gardner, Jr.....Jefferson
James Erskine Gillespie.....Marshall
John Bennett Gipson.....Marshall
Leon Bell Gladish.....Tennessee
Lewis Gudenrath Goldstein.....Madison
Harless Grace.....Walker
Charles Merrill Gray.....Walker
John Martin Griffin, Jr.....Jefferson
William Horace Griffin.....Bibb
Alfred Flournoy Griggs.....North Carolina
William Elmer Grimsley.....Escambia
Isham Belle Gunter.....Lee
Lindsey Jesse Gunter.....Lee
Andrew Byron Hall.....DeKalb
Jesse Pankey Hall.....Etowah
Wallace Howard Hall.....Montgomery
William Stephenson Halsey.....Colbert
John Garmon Hamilton.....Franklin
Joseph Langhorne Hammond.....Etowah
James Arnold Harmon.....Chambers
Sidney Guenveur Harper.....Montgomery
Creshull Charles Harrison.....Florida
Ernest Harvey.....Montgomery

Vester Maxwell Hasson.....Tuscaloosa
Arthur Lee Hayley.....Walker
Oliver Ripley Head.....Shelby
Clifford Pinkney Hendricks.....Blount
Elmer High.....Chambers
Hoyt Grady Hodge.....Randolph
Orville Butler Hodges.....Madison
Joseph Kyle Holley.....Elmore
Simeon Wirt Hooper.....Marshall
John Monroe Howarth.....Chambers
Milton Oliver Howle.....Jefferson
Frank Hughes.....Jefferson
George McGowin Humphries.....Baldwin
Edward Ray Hurn.....Lauderdale
Joseph Theodore Hury, Jr.....Jefferson
Erastus Winom Ingle.....Blount
Robert Little Irwin.....Montgomery
John Irwin Jackson.....Henry
Edward Clare Jacob.....Dallas
Clint Jacobs.....Coosa
Dwight Lamar Moody James.....Mississippi
Reuben Jarrell Jennings.....Chambers
Jerry Leslie Jimmerson.....Lee
Elizabeth Pearle Johnson.....Lee
Ralph Duncan Johnson.....Geneva
Richard Malcolm Johnston.....Jefferson
Patrick Burrus Jones.....Georgia
Sidney Bradford Jones, Jr.....Colbert
Joseph Benjamin Kantor.....Jefferson
Hanson Stakely Keller.....Jefferson
John Simmons Kernachan, Jr.....Lauderdale
James Homer Killebrew.....Calhoun
John King.....Lee
Joseph Carl Kingsbery.....Georgia
Joseph Hardin Kirby.....Colbert
Bryan Edwards Kirven.....Lee
Robert Arthur Kohloss, Jr.....North Carolina
George Barnes Komp, Jr.....Mississippi
Merwin Turner Koonce.....Lauderdale
Melton Winship Kyser.....Elmore
Edwin Bragg Lancaster.....Sumter
Colquitt Hill Lane.....Lee
Matthew Lawson.....Montgomery
Howard Stuart Leach.....Montgomery
Thomas Benjamin Lee.....Barbour
Frank Underwood Leonard.....Jefferson
Wallace Henry Lindsey, Jr.....Choctaw
Albert Shelton Lisenby.....Houston
Peyton Brantley Little.....Georgia
John Burrow Looney.....Jefferson
George Thomas Lowe.....Georgia
Fountain Alexander Maddox.....St. Clair
Alfred Shelby Martin.....Jefferson
Thomas Holland Massey.....Georgia
James Fountaine Maury, Jr.....Mobile
Archie Vernon Meigs.....Clay
Janssens Joseph Melancon.....Louisiana
Amos Bender Miller.....Cullman
Joachim Perreurt Milligan.....Covington
William Emery Miner.....Mississippi
Jacob Robert Moon.....Coosa

Francis Cecil Morere.....Mobile
Frank Stewart Morgan.....Dallas
Jane Warren Morris.....Lee
Walter Gilliam Murdock.....Jefferson
Hubert LaFayette McCain.....Clay
Edward Simeon McCree.....Tallapoosa
William Harvey McEachern.....Barbour
Alfred Cameron McIsaac.....Tennessee
Jesse Numan McLane.....Florida
Ellie LaFayette Nelson.....Marshall
Oscar Albin Nelson.....Jefferson
William Gamble Nethery.....Limestone
James McCarty Oliver.....Walker
James Cornelius O'Neal.....Mobile
Koy John Orr.....Chambers
Robert Homer Orr.....Chambers
Winfield Scott Owsley.....Wetumpka
Frank Page.....Houston
Bledsoe Payne.....Chambers
Gerald Walstein Pearson.....Georgia
William Beatty Pearson.....Hale
James Byrd Pilcher.....Houston
James Henry Pirkle.....Georgia
David Pogue.....Clarke
Ernest Eugene Price.....Talladega
Walter Clyde Raley.....Shelby
Edward Hunt Ray.....Perry
Grover Washington Ray.....Tallapoosa
Robert Presly Rebman.....Lawrence
Henry George Redding.....Georgia
George Daly Revington, Jr.....Tennessee
Adam Olin Riser, Jr.....Jefferson
James Alexander Robbins.....Covington
Amos Dalton Roberts.....Fayette
Robert Clyde Rogers.....Escambia
Lee Henry Rogge.....Louisiana
Edward Lee Ruff.....Macon
Richard Olney Russell.....Morgan
James Drake Samford.....Montgomery
William James Samford.....Lee
William Hardin Saunders.....Tennessee
James Ash Scoggins.....St. Clair
John Phillip Shealy.....Houston
Samuel Shepherd.....Walker
Claude Sizemore.....Fayette
Emmett Sizemore.....Fayette
John Cooper Slone.....Morgan
Ernest Gustave Small.....Dallas
Charles Linton Smith.....Fayette
LaFayette Cooper Smith.....Chambers
Mirah Raymond Smith.....Bibb
Thomas Poland Smith.....Texas
Lawrence Cavell Sparkes.....Mississippi
Ewart Andrew Speer.....Clay
LaRue Spence.....Georgia
Edward Jacobs Stallings.....Georgia
James Henry Standridge.....Blount
William Richmond Stephens.....Lee
Reubin Leslie Stevens.....Chambers
Edgar Strong.....Jefferson
Francis Seaborn Stubbs.....Georgia

Dana Gibson Sturkie.....Lee
Jack Tamblyn.....Jefferson
Edgar Cecil Taylor.....Crenshaw
Joe Thomas.....Tallapoosa
Paul Isaac Thomas.....Marengo
Fletcher Thorington.....Montgomery
Robert Patrick Thornton.....Lee
Edward Hofford Todd.....Jefferson
James Bennett Townsend.....South Carolina
John Herman Trapp.....Mississippi
Joseph Pierce Trotter.....Baldwin
Himan Urdong.....Jefferson
Erskine Vandegrift.....St. Clair
Robert James Varner.....Lee
Lewis Chandler Vaughn.....Georgia
John Virgil Waits.....Georgia
Young Wall (Irregular Course).....Limestone
Butler Warren.....Morgan
Chester Clyde Warren.....St. Clair
Lynn Casey Watson.....Jefferson
Robert Leon Webb.....Georgia
Carl Eric Wideberg, Jr.....New Jersey
Harry DeLos Williamson.....Tennessee
Clyde English Wilson.....Walker
John Bonard Wilson.....Marshall
William Patrick Wilson.....Mississippi
Edmund Jackson Winslett.....Tallapoosa
Raymond Wood.....Baldwin
Aaron Montgomery Woodall.....St. Clair
Arthur Paschal Woodfin.....Perry
Leonard Rudolph Wright.....Georgia
Alfred Irvin Young.....Georgia
Calvin Locke Young.....Texas
John Guinn Young.....Georgia

TWO-YEAR COURSE IN AGRICULTURE.

SECOND YEAR.

Joel Richard Abney.....South Carolina
Wallace Boaz, Jr.....Talladega
John A. Chancellor.....Cherokee
Vivian Pendleton Gaines, Jr.....Mobile
William Skeggs Johnston.....Morgan
Joseph Walsh Matthews.....Mobile
Frank Wilson Parker.....Kentucky
Frederick Crones Partridge.....Mobile
Thomas Laydon Pierce.....Barbour
Malcolm Floyd Smith.....Autauga
William Alberto Stiles.....Jefferson
Tilghman Anderson Turner.....Jefferson
Edward R. Wren.....Talladega

FIRST YEAR.

Edward Fulmer Armstrong.....Jackson
James McDowell Baker.....Talladega
Malory LaFoy Batson.....Jefferson
Arthur Clayborn Cadenhead.....Lee
Archibald Roane Callen.....Dallas
Frederick Carl Cannon.....Georgia
John Hunter Carr.....Mississippi
Elmer Rice Chambliss.....Autauga

Herman Leslie Childs.....Geneva
Joseph Green Coleman.....Sumter
Charles Dixon.....Escambia
Charles Leon Garner.....Geneva
Roney Grasse.....Limestone
Harold Watts Grimes.....Wilcox
David Guthrie.....Baldwin
Lamar Cantelou LeBron.....Elmore
Robert Lee Martin.....Jefferson
Roy Byus Moody.....St. Clair
Harry J. Moore.....Mobile
Forest Edgar Nichols.....Baldwin
William Ernest Oates.....Autauga
George Eldridge Owens.....Pike
Lewis Joseph Raemon.....Jeffersou
Lee Ray Roberts.....Calhoun
Frank Sanford.....Calhoun
William Harper Spencer.....Greene
Harry Roy Tamplin.....Lee
Harrell Taylor Vance.....Talladega
Richard Allen Vinton.....Tennessee
James Walker.....Texas
Walter Alexander Whatley.....Lee

TWO-YEAR COURSE IN APPLIED ELECTRICITY.

SECOND YEAR.

Claude Leland Chester.....Georgia
Felix Albartus Coleman.....Mobile
Dewey Mattison Ferrell.....Greene
Charles Wesley Gantt.....Elmore
William Ingram.....Georgia
Augus Arthur McIntyre, Jr.....Talladega
Richard Daniel Stevens.....Madison
Samuel Jones Tankersley.....Georgia
Cecil Worth Thompson.....Randolph

FIRST YEAR.

Curtis Bryan Avery.....Chambers
Ralph Bates.....Lowndes
Abraham Charles Berman.....Jefferson
Carl Herman Brill.....Jefferson
William Ervin Brunson, Jr.....South Carolina
William Harrison Bussell.....Georgia
Golden Cecil Cruise.....Autauga
Clinton Jasper Glover.....Walker
Horace Harmon Glover.....Jefferson
Maurice Greenberg.....Jefferson
Frank Thomas Hicks.....Georgia
Lucian Hill.....Pickens
James Otis House.....Clay
Griffin Theobold Key, Jr.....Montgomery
Clarence Linwood Manning.....Covington
Joseph Memoli.....Jefferson
Erasmus Lewis Miller.....Covington
Fletcher Whitfield Powers.....Lee
Foy Shultz.....Pike
John Bruce Snider.....Jefferson
Charles Max Sobouka.....Morgan
John Edward Stewart.....Bibb

TWO-YEAR COURSE IN MECHANIC ARTS.

John Joseph Beggs.....Jefferson
Desmond Crain.....Wilcox
William Henry Kettig, Jr.....Jefferson
Frank Morgan.....Jefferson
Frederick Musgrove.....Marion
William Randolph Palmer.....Georgia
William Earl Shinn.....Talladega
William Henry Stoves.....Jefferson
Milton Wesley Thomas.....Dallas

IRREGULAR STUDENTS.

Joseph Patrick Allgood.....Calhoun
Lehron Ard.....Geneva
Edward Yancey Argo.....Talladega
Cyrus Andrew Aschraft.....Lauderdale
Berta Leon Balch.....Macon
Charles Randolph Barksdale, Jr.....Bullock
Clarence Reneau Beutell.....Georgia
Mose Bilder.....Tennessee
Forest Reynolds Birchfield.....Jefferson
John Vivian Blackman.....Tuscaloosa
Gill Wyeth Blackshear.....Houston
Otis Winfield Britt.....Covington
Charles Jacob Brockway, Jr.....Sumter
Brisbane Hanks Brown.....Texas
Ollie Clifton Bryan.....Coffee
Gurley Everett Burgin.....Jefferson
Thomas Henry Burton.....Calhoun
Giles Homer Carlovitz.....Mississippi
Elwyn Allen Cary.....Lee
D. Arnold Caylor, Jr.....Bullock
John Roger Chambliss.....Autauga
Jesse Herman Chappell.....North Carolina
Joseph Wheeler Clancy.....Jefferson
Lucile Meredith Cobb.....Macon
Jackson Lowery Collins.....Mississippi
William Edmond Conger.....Louisiana
Edward Bernard Cooley.....Jefferson
Charles Brandon Crow.....Walker
Andrew Howell Crull.....Jefferson
Berry Cruse.....Jefferson
Charles Fairchild DeBardeleben, Jr.....Jefferson
Henry Fairchild DeBardeleben.....Jefferson
Edwin Didlake.....Jefferson
White Doster.....Jefferson
Arthur Maultsby Dowell.....Jefferson
William Edward Frawley.....Jefferson
Lawrence Tatum Fullington.....Etowah
Mrs. John Hart Fussell.....Geneva
Upshaw Franklin Gibson.....Clay
James Needham Gilmer.....Choctaw
Legare Hairston.....Marengo
Adolphus Alexander Hale.....Sumter
Frank Gurley Hall.....Madison
Robert William Hanby.....Jefferson
Estes H. Hargis.....Jefferson
Walter Elbert Harrell.....Lowndes
Ellis Phillip Harris.....Jefferson
John Tyler Heflin.....Randolph

Mrs. J. E. Henry ..... Lee
Samuel Robert Huey ..... Jefferson
John William Hutto ..... Walker
Milo Barrett Howard ..... Montgomery
Louis Earl Jenkins ..... Jefferson
Edwin Harley Jessup ..... Georgia
Joseph William John ..... Dalllas
Neal Corbly Johnson ..... Colbert
Madison Jones ..... Hale
Raymond Boone Kelly ..... Jefferson
Admiral Dewey Kilgore ..... Randolph
Howard Cecil Kilpatrick ..... Jefferson
Cecil Emmette Kimbrough ..... Marengo
Frazer Westmoreland Kolb ..... Lee
Howard Lamar, Jr. ..... Lee
Robert Lapsley ..... Dallas
Marion Earl Lasater ..... Jackson
John Bannister Leek ..... Etowah
Andrew Dowdell Lipscomb ..... Lee
Frank Corry Lipscomb ..... Lee
Donald Dupree Lowery ..... Escambia
Victor Irvin Masters, Jr. ..... Georgia
Daniel DeVote Monroe ..... Jefferson
William Oscar Mulkey, Jr. ..... Geneva
John Herbert Murray ..... Escambia
Cummings Herrington McCall ..... Montgomery
William Franklin McLemore ..... Talladega
James Gay Nall ..... Jefferson
Robert Nobles ..... Florida
Byron Yarbrough Pennington ..... Covington
Julius Albert Peterson ..... Coosa
Paul Pinckard ..... Jefferson
Burke Dulain Ponder ..... Georgia
Louis Rogers Rainey ..... Talladega
Manuel Gomez Ribeiro ..... Brazil
James Paul Robinson ..... Choctaw
James Donald Russell ..... Calhoun
Carl Sanders ..... Randolph
Mortimer Dewey Sanders ..... South Carolina
William Lee Sims ..... St. Clair
Cornelius Clyde Smith ..... Lee
Lemuel Bloodworth Standifer ..... Florida
Willard Lamont Stevens ..... Mississippi
Arthford Pearson Stough ..... Montgomery
Homer Theodore Sudduth ..... Jefferson
J. B. Tabor ..... Madison
Alexander Ogden Taylor ..... Florida
John Simpson Tennent ..... North Carolina
Esther Thompson ..... Randolph
James Anderson Ward ..... Georgia
Ulon Victor Wellons ..... Georgia
Ulysses Virgil Whipple, Jr. ..... Georgia
John Randolph Whitehead ..... Georgia
Edward Meade Wilson ..... Florida
John Stanton Woodson ..... Walker
Andrew Jackson Wynne ..... Marengo
John Fletcher Yarbrough ..... Houston
Ruth Zuber ..... Lee
Willie Zuber ..... Lee

DEPARTMENT OF PHARMACY.

FOUR-YEAR COURSE.

SENIOR CLASS.

Howard Milton Boyd.....Lee
James Foy Middlebrooks.....Barbour
James Kirk Newell.....Tallapoosa

JUNIOR CLASS.

William Henry Philpot, Jr.....Macon

IRREGULAR STUDENTS.

Roland Lee Adams.....Clarke

TWO-YEAR COURSE.

SECOND YEAR.

Leslie Allen Akins.....Barbour
Charles Martin Cherry.....Houston
Ernest Matkin Dunn.....Marengo
James Thomas Farmer.....Geneva
Henry Carl Fischer.....Cullman
Ellis Grey Griffin.....Clarke
Pugh Bryan Harris.....Pike
Glover Abraham Johnson.....Cherokee
George Lawrence Morris.....Crenshaw
Byron Ross McBryde.....Geneva
Henry Erskine McNamara.....Jefferson
Harden Clavin Reynolds.....Lee
Rhett Goode Reynolds.....Crenshaw
Carl Vernon Tanner.....Mobile
Charles George Yarbrough.....Monroe

FIRST YEAR.

Frederick Armstrong.....Cullman
Robert Turpen Ashhurst, Jr.....Tallapoosa
Henry Grady Buchanan.....Tennessee
John Rufus Evans.....Georgia
John Baltzell Hayes.....Macon
Robert Andrews Hill.....Pickens
Clyde Dallas Hodge.....Randolph
Conway John Justice.....Autauga
Cecil Emmette Kimbrough.....Marengo
Will Cloyde McKee.....Georgia
Lee Palmer.....Washington
Ford Benson Patterson.....Baldwin
Reuben Jackson Plant.....Tallapoosa
William Hunter Plott.....Pickens
Thomas Simes.....Marshall
Milton LeGrand Wood, Jr.....Montgomery

IRREGULAR STUDENTS.

Charles Francis Brannon.....Henry
Brack M. Burton.....Walker
Jeffries Nathaniel Dubberly.....Macon
Arthur Smith.....Clay
Malcolm Tyus.....Autauga

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

THIRD YEAR.

Dee Lloyd Allen	Sumter
William Elmer Bachelor	Elmore
Daniel Lorenzo Campbell	Marshall
Billy Elza Carlisle	Macon
Hosmer LaFayette Farr	Jefferson
Condie Pugh Gaston	Wilcox
Robert Henry Glenn	South Carolina
Thaddeus Lamar Glenn	South Carolina
Thaddeus Henry Ingram, Jr.	Lee
Byron Newman Lauderdale	Coosa
Harmon King Law	Pike
William Lonnie Parrish	Chilton
Leon Louis Powell	Choctaw
Walter James Schimmel	Jefferson
Edward Hunter Welles	Tennessee

SECOND YEAR.

Carey Linwood Bell	North Carolina
Richard Taylor Compton	Marengo
William Francis Conner	Pickens
William Francis Donahue	Lee
John Hart Fussell	Geneva
Alton R. Gissendanner	Dale
Roy Howard Herron	South Carolina
Allen Jesse Miller	Clarke
William Sumter Reynolds	Pike
Harrison Webb Sloane	Mississippi
William Lee Smith	Jefferson
James Ralph Sullivan	Lee
Fletcher LeRoy Vinson	Lee
Everett Sompoyac Winters	South Carolina

FIRST YEAR.

Frederick Franklin Breithaupt	Wilcox
Neil Ford	Marion
John McKee Gould, Jr.	Greene
Robert Harper Hamner	Pickens
Everette Lee Harper	Pickens
McKenzie Heath	Coffee
Walter Henderson Hines	Monroe
Albert Lee Holloway	Monroe
Robert Russell Jeter	South Carolina
John Bryan Jordan	Pickens
Dorrance D. Major	Mississippi
Bruce William Murray	Mobile
Lonnie B. Nesmith	Blount
John Oliver, Jr.	Mississippi
Clyne Valdez Presley	Butler
James Benett Randall	Baldwin
James Daniel Ratchford	Chambers
Raymond R. Sally	South Carolina
William Russell Stillings	Wilcox
Selman Lamar Threadgill	Dallas
Uriel Vivian Weeks	Marion

IRREGULAR STUDENTS.

Houston Davidson Alexander	Dallas
John Howard Beckham	Hale
Thomas Walter Boman	Cleburne
George Barney Bradshaw	Mississippi
Bloemer Brandon	Pickens
William Posey Claughton	Chilton
Kerr Miller Clements	North Carolina
William Goodall Collins	Georgia
Frank Baury Cook	Choctaw
William Pierce Crawford	Marengo
Turner Mitchel Dennis	Chilton
William Lipscomb Douglas	Marengo
William Asker Fuqua	Barbour
Leonard Johnson Hill	Calhoun
John Mobley Jeter	South Carolina
Judson Jowers	Elmore
Forrest Key	Walker
Guy Edgar Pace	Georgia
Tennent Lamar Payne	Crenshaw
Frank Kirk Peterson	Dallas
Rufus Arnold Roberts	Randolph
George Malcolm Steed	Wilcox
Emmette Beeson Wheeler	Jackson
Frank Wilson	Georgia

SUMMARY.

Graduate Students	16
Senior Class	118
Junior Class	84
Sophomore Class	159
Freshman Class	251
Pharmacy	41
Veterinary Medicine	74
Mechanic Arts	9
Applied Electricity	31
Two-Year Course in Agriculture	44
Irregular Students	107
	934
Deduct for names counted twice	4
Total	930

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	676	Chemistry	491
History	513	Agronomy	439
International Law	214	Agr. Engineering	86
Civics	27	Animal Husbandry	497
French	28	Physics	460
German	34	Botany	178
Spanish	72	Entomology	45
Latin	77	Zoology	79
Education	162	Horticulture	183
Political Economy	68	Forestry	40
Mathematics	543	Veterinary Medicine	74
Chemical Laboratory	213	Landscape Gardening	58

Geology	98	Machine Design	103
Civil Engineering	45	Agricultural Drawing	42
Surveying	290	Descriptive Geometry	106
Electrical Engineering	157	Mechanic Arts	525
Mechanical Engineering	241	Mineralogy	17
Mining Engineering	9	Pharmacy	60
Architecture	13	Military Department	800
Mechanical Drawing	303		

RESIDENCE BY STATES.

Alabama	745
Georgia	73
South Carolina	27
Florida	20
Mississippi	20
Tennessee	17
Louisiana	9
North Carolina	8
Texas	5
Kentucky	1
Missouri	1
New Jersey	1
Brazil	1
China	1
Mexico	1

SUMMER SESSION, June 8 to July 19, 1916.

CATALOGUE OF STUDENTS.

Adams, Roland Lee, Jackson
Adams, Leonard B., Birmingham
Addison, Olive, Notasulga
Adkins, Ernest C., Birmingham
Alexander, Shirley Fairfax, Prattville
Allen, Roger, Birmingham
Allen, Josephine, West Point, Ga.
Ammen, Irvine, Birmingham
Anderson, J. G., Clarksville, Tenn.
Armstrong, Mrs. M. M., Atlanta, Ga.
Armstrong, Frances, Auburn
Avery, W. H., Auburn
Avery, M. R., Auburn
Avery, Jas. O., Auburn
Ayres, Dora, Newell
Baker, D. L., Orange Home, Fla.
Ballard, Ocye Agnes, Opelika
Barker, Ollie, Auburn
Barker, Costa Boone, Auburn
Barker, Wyss, Auburn
Barker, Vida, Auburn
Barker, Marcus R., Auburn
Barnes, Mrs. Esther L., Opelika
Barnes, Perry O., Opelika
Bates, Harrison, Greenville, S. C.
Beall, Carl Lee, Luverne
Beasley, Marye, Auburn
Berry, Elizabeth W., Mobile
Bevill, Walter G., Greensboro
Bickley, Jonathan Taylor, Gainesville
Billing, W. M., Montgomery
Birchfield, Bessie, Pyriton
Birchfield, Alma, Pyriton
Bird, Mafus, Thomaston
Blackmon, Josie, Columbus, Ga.
Blasingame, Edmond L., Auburn
Blasingame, W. C., Auburn
Boling, Mrs. Annie P., Eutaw
Bonner, M. L., Lineville
Borders, Mrs. Pauline C., Ozark
Bostick, Roger McIver, Benoit, Miss.
Bowling, Geo. Randolph, Dadeville
Boyd, Martha Elizabeth, Auburn
Boyd, Lucile, Hartford
Bryan, Howard F. Jr., Tallassee
Bryan, Ollie Clifton, Elba
Buchanan, Mrs. A. H., Auburn
Burbage, Jesse S., Birmingham
Burgin, J. W., Birmingham
Burgess, Hugh, Edwardsville
Burnett, Annie Grace, Camp Hill
Burnett, Marvin, Altoona
Burr, Mrs. Mary M., Auburn
Bush, Charles Cleveland, Childersburg
Cadenhead, Crecie Mae, Notasulga
Caldwell, Frances, Scottsboro
Caldwell, Daisy, Scottsboro
Cammack, W. A. Faunsdale
Campbell, John H., Pyriton
Carlovitz, Giles Homer, Gulf Port, Miss.
Carnes, Avery, Hamilton
Carnes, Colonel Richard, Hamilton
Carter, Wilmer H., Pensacola, Fla.
Cary, Mrs. C. A., Auburn
Cauthen, Katie Frances, Auburn
Cauthen, Mrs. E. F., Auburn
Chapman, Thos. H., Selma
Chappell, Jas. A., Ensley
Cherry, Chas. Martin, Dothan
Childree, L. L., Grimes
Childree, Barney, Grimes
Clay, Emma Ruth, Girard
Clay, Bertha Lee, Girard
Colson, Nettie Lou, Midland City
Coney, James Barfield, Cordele, Ga.
Corcoran, W. W., Cottonton
Cox, Mrs. J. A., Auburn
Crenshaw, Mary Glenn, Auburn
Crow, Chas. Brandon, Jasper
Dabbs, Lera P., Camp Hill
Daniel, Herchel Jackson, Hogansville, Ga.
Davis, Mamie Ruth, Ramer
Davis, Laurie, Prattville
Davis, John Marvin, Birmingham
DeVore, Ruth, Jemison
Dickert, Mary, Tennille
Dickert, Emma, Tennille
Dillard, W. R., Washington, Ga.
Dodd, Collie O., Boaz
Dorman, Verbye, Enterprise
Doughtie, Chas. E., Columbus, Ga.
Dowdell, Katherine, Auburn
Douglas, J. A., Mobile
Drake, J. H., Opelika
Drake, Ross, Auburn
Duggar, L. G., Auburn
Duggar, Dorothy, Auburn
Duggar, Frances, Auburn
Dumas, Mrs. A. C., Auburn
Duke, Etta Jean, Opelika
Duncan, Mrs. George W., Auburn
Dunnigan, L. B., Chicago, Ill.
Eagle, Julius, Selma
Easters, Irene, Troy
Edwards, Anna Lee, Auburn
Edwards, Glennie Dee, Society Hill
Farr, Homer LaFayette, Brighton
Ferris, John C., Augusta, Ga.
Fleming, Olla, Opp
Fox, Willie, Montgomery
Fullan, James M., Auburn
Fullan, Lysbeth, Auburn
Fuller, John Peyton, Huntsville
Funk, L. W., Florence
Gandy, R. L., Plantersville

Gibbons, Samuel H., Marbury
Gray, Bessie, Waynesboro, Miss.
Grimes, Zelma, Greenville
Gunter, Lindsey, Opelika
Gunter, Mittie P., Opelika
Haigler, Henry, Boyles
Hall, Wayne Willard, Collinsville
Hamilton, Mrs. G. W., Auburn
Hansis, May, Birmingham
Harden, I. L., Wilsonville
Harden, Mrs. I. L., Wilsonville
Hardwich, Lillian Marie, Notasulga
Hare, Emily, Auburn
Harris, Elizabeth Blanche, Dothan
Harris, P. Horace, Stanton
Hayes, Vergile L., Notasulga
Hayes, William, Daviston
Hayes, John B., Notasulga
Hayley, Arthur Lee, Jr., Nauvoo
Haynie, Marybell, Auburn
Head, Jennie E., Mobile
Head, T. L. Jr., Grove Hill
Heflin, Vicie, Wedowee
Helmich, D. A., Birmingham
Henderson, Annie, Camp Hill
Henry, Rosa Julia, Auburn
Henry, Mrs. R. C., Auburn
Hicks, W. L., Midland City
Hicks, Mrs. W. L., Midland City
Hickey, James E. Jr., Atlanta, Ga.
Hogan, Jesse J., Speigner
Hollis, Daniel Webster, Headland
Hollifield, Mollie Hal, Auburn
Holstun, Hollis Oswald, Camp Hill
Holstun, J. Tucker, Camp Hill
House, H. H., Altoona
Houston, Frank C., Columbia, S. C.
Howe, Eugenia, Auburn
Howard, Walter Lucian, Milltown
Howard, William John, Montgomery
Hudson, Mrs. J. T., Auburn
Hughes, B. Ivan, Rockford
Isbell, W. J., Auburn
Isbell, Mrs. W. J., Auburn
Jackson, Mary Frances, Notasulga
Jacobs, Wm. S., Cuthbert, Ga.
James, Lillian, Waverly
Jennings, Reuben Jarrell, West Point, Ga.
Jimmerson, J. L., Opelika
Jones, Joe, Evergreen
Johnson, Reuben Lee, Dadeville
Johnson, Lucius Wiley, Holt
Johnson, Sydney Walter, Jr., Auburn
Jordan, Thomas, Union Grove
Judd, Mrs. Zebulon, Auburn
Keith, Jno. Moses, Auburn
Kelly, J. M., Cordele, Ga.
Kernahan, Robt. Thomas, Sheffield
Kersey, Pearlie, West Point, Ga.
Kimball, Lee Eugene, Auburn
Knapp, Louise, Auburn
Knight, Tullis, Clio
Kolb, Frazer W., Auburn
Kyle, Ponsonby, New Decatur
Lafon, Norton, Altoona
Lamar, Howard, Jr., Auburn
Lamar, Mildred, Auburn
Lamar, Geo. Glenn, Auburn
Lane, F. R., Roanoke
Lane, William, Auburn
Langley, Vera, Camp Hill
Langley, Elliott Monroe, Dadeville
Langley, Mrs. Irene, Dadeville
Lassiter, Katie, Phoenix
Lauderdale, Byron N., Kellyton
Leek, J. B., Gadsden
Lewis, Hester Marion, Blocton
Lisenby, James Otis, Dothan
Lipscomb, Andrew D., Auburn
Love, Susie, Girard
Lowrey, Maude, Bay Minette
Lumpkin, Geo. E., Albertville
Luttrell, Ruth, Oxford
Martin, Mrs. C. N., Atlanta, Ga.
Martin, Mrs. W. D., Auburn
Matthews, Juliet, Hackleburg
Mayes, J. B., Bainbridge, Ga.
McAdory, Mrs. I. S., Auburn
McCall, Claude Mortimer, Brewton
McCants, Anne Beall, Demopolis
McCormick, Paul S., Mobile
McCrary, A. P., Senoia, Ga.
McGinty, Oriel, Camp Hill
McKissac, Imogene, Welsh
McLeod, Katherine, Troy
McLemore, Wm. Franklin, Gantts Quarry
McMeans, Forrest Whitlock, Birmingham
Meadors, Lucile, Cusseta
Messick, Mrs. J. F., Auburn
Millican, Jay, Hamilton
Mitchell, Elizabeth M., Bessemer
Mixon, Otis, Dothan
Morris, Eldora, Notasulga
Morris, Jane, Auburn
Murray, John H., Brewton
Neal, Thos. Clifford, Birmingham
Nelson, Mrs. Fred M., Rockford
Nelson, Fred M., Rockford
Nesbitt, Jule S., Birmingham
Newell, James Kirk, Dadeville
Nixon, M. F., Argo
Noble, Mamel, Robbins, Tenn.
Norman, Mollie, Union Springs
O Hara, Minnie, Auburn
Owens, William W., Banks
Parker, Lorena, Notasulga
Patrick, Mrs. B. S., Auburn

Pearson, Gerald W., Devereaux, Ga.
Peter, C. S., Maylene
Pierce, Sara Emma, Culloden, Ga.
Pimm, A. B., Tampa, Fla.
Poole, Jno. A., Thorsby
Powell, J. C., Auburn
Prather, Osie Clyde, Auburn
Prendergast, H., Auburn
Prince, Mary Clyde, Salem
Prince, Laura Ethel, Salem
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INDEX

	PAGE
Academic Year	147
Admission	25
Admission on Certificate	27
Admission from other Colleges	30
Agricultural Club	137
Agricultural Experiment Station Staff	9
Agronomy	19, 31, 50, 111
Alumni	137
Animal Husbandry	21, 52, 122
Architecture	18, 47, 97
Architectural Engineering	48, 97
Astronomy	70
Athletics	138
Band	136, 150
Boarding	140, 146
Botany	19, 53, 114
Buildings of the College	23
Cadet Officers	148
Calendar 1917-1918	3
Catalogue of Students	158
Certificate Schools	27
Changes in Course	30
Chemical Engineering	19, 43, 107
Chemistry	19, 44, 53, 107
Civil Engineering	12, 39, 81
Classification of Students by Residence	175
Classification of Students by Studies	174
College Established	10
College, Object of	10
College of Agricultural Sciences	19, 50, 107
College of Engineering, Mines and Architecture	12, 38, 81
College of Veterinary Medicine and Surgery	22, 57, 128
Committees of the Faculty	8
Conditions, Removal of	30
Courses of Instruction	31, 37, 58
Degrees	33
Discipline	139
Distinctions	140
Distinguished Students	156
Drawing	17, 101
Economics	58
Education	75
Electrical Engineering	12, 40, 85
Electricity, Applied	45
Engineering Society	137
English	58
Entomology	21, 121
Examinations, Entrance	25
Examinations, Monthly and Term	141
Expenses	146
Exercises Required	29
Experiment Station Council	9
Extension Work	127
Faculty and Officers	5
Farm	19

INDEX

	PAGE
Fees, Alabama Students	147
Fees, Non-Residents	147
Fee, Contingent	145
Fees, Laboratory	145
French	65
General Course	37
German	66
Geology	16, 95
Graduate Courses (see each department also)	33
Graduates, 1916, Roll of	152
Gymnasium	24, 138
History	22, 62
Honor Scholarships	145
Honor Students	156
Honor System	141
Horticulture	20, 52, 119
Laboratories	35
Laboratory Facilities:	
Agriculture	19
Animal Husbandry	21
Architecture	18
Botany	19
Chemistry	19
Civil Engineering	12
Drawing	17
Entomology	21
Electrical Engineering	12
History	22
Horticulture	20
Mechanic Arts	14
Mechanical Drawing and Machine Design	17
Mechanical Engineering	13
Military Tactics	22
Mineralogy	16
Mining Engineering	16
Ore Dressing	17
Pharmacy	20
Physics	22
Physiology	22
Veterinary Science	22
Laboratory Fees	145
Latin	64
Library	24, 144
Literary Societies	136
Location	147
Mathematics	68
Mechanic Arts	13, 45, 89
Mechanical Drawing and Machine Design	17, 101
Mechanical Engineering	13, 41, 89
Medical Attendance	147
Metallurgy	44
Military Drill	140
Military Organization	70, 148
Military Science and Tactics	70
Military Science, Distinguished Students in	149
Mineralogy	16, 96

INDEX

	PAGE
Mining Engineering 16, 42, 46,	94
Modern Languages	65
Museum	144
Non-Resident Students	145
Objects of the College	10
Officers, Cadet	148
Officers, College	8
Officers of Experiment Station	9
Orations	59
Organization, Colleges	11
Pharmacy 20, 54, 55,	117
Psychology	58
Physics 22,	69
Physiology 22,	128
Post-Graduate Courses	33
Prizes	143
Professional Degrees	34
Public Speaking	59
Records	141
Re-Examinations	141
Registration	25
Regulations	139
Religious Services	140
Reports	141
Requirements for Admission	25
Road Foremen and Inspectors, Course for	46
Scholarships	142
Societies, Literary	136
Society of the Alumni	137
Spanish	67
Special and Irregular Students, Regulations	29
Station Council	9
Students, Roll of	158
Summer Session 79,	176
Surgeon	147
Surveying 12, 81,	84
Thesis	147
Trustees	4
Uniforms 70,	144
Veterinary Medicine 22, 57,	128
Veterinary Medical Association	138
Veterinary Science 22,	128
Wireless Telegraphy 46,	88
Woodwork	89
Women Admitted to College	29
Young Men's Christian Association	136

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1918

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The leading object of the Institute, in conformity with the Act of Congress and the Acts of the State Legislature, is to teach the principles and applications of science.

In its courses of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline and liberal education obtained by the study of languages and other sciences are not neglected.

All students are required to study the English Language. The Latin, French, Spanish and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the faculty. The Institute thus endeavors to educate as well as instruct, to form character as well as give information of value.

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The instruction offered by the College is arranged in four divisions: (1) College of Engineering, Mines and Architecture, (2) College of Agricultural Sciences, (3) Academic Departments, (4) College of Veterinary Medicine and Surgery.

I. The College of Engineering, Mines and Architecture offers degree courses in (1) civil engineering, (2) electrical engineering, (3) mechanical engineering, (4) mining engineering, (5) chemical engineering, (6) chemistry and metallurgy, (7) architecture, and (8) architectural engineering.

In addition, students in these courses of the College of Engineering, Mines and Architecture receive instruction in other departments as follows: Mechanical drawing and machine design, English, mathematics, history and Latin, modern languages, physics, chemistry, and military science and tactics.

II. The College of Agricultural Sciences offers regular degree courses in (1) agronomy, (2) chemistry, (3) botany, (4) horticulture and forestry, (5) animal husbandry, and (6) pharmacy; a three-year course in pharmacy; a two-year course in pharmacy; a two-year course in agriculture.

In addition, students in the different departments of the College of Agricultural Sciences receive instruction in other departments as follows: English, history and Latin, modern languages, mathematics, mechanic arts, surveying, physics, geology and mining engineering, mechanical drawing and machine design, military science and tactics, and veterinary science.

III. A degree course is offered in the following subjects: Education, political economy, mental science, English, history and Latin, modern languages, mathematics, physics, military science and tactics.

In addition students in the general course receive instruction in the following technical departments: Mechanic arts, drawing, geology, animal husbandry, chemistry, botany, and agronomy.

IV. The College of Veterinary Medicine and Surgery offers a four-year course leading to the degree of Doctor of Veterinary Medicine. This college comprises the following departments: Veterinary medicine, physiology, surgery, anatomy, therapeutics, pathology, histology, bacteriology, obstetrics, infectious diseases, meat inspection, milk inspection, and animal parasites.

FACILITIES FOR INSTRUCTION

The Institute possesses facilities for giving laboratory instruction in history, Latin and the departments of applied science.

COLLEGE OF ENGINEERING, MINES AND ARCHITECTURE

I. Civil Engineering.—The department of civil engineering is located in Broun Hall and occupies two lecture rooms, a drafting room, an office, an instrument room and a road materials laboratory. It is equipped with transits, levels, plane tables and other instruments necessary for giving field practice in the several branches of surveying.

A very complete camping outfit consisting of tents, cots, stools and kitchen and mess tent outfit, is available for use in the summer camp and school of surveying.

The drafting room is spacious and well lighted, and is equipped with well appointed drawing desks, tables, filing cases, models of bridges and roofs, and a large number of blue prints donated by various bridge companies for study and comparison by students in bridge and structural design.

In practical hydraulics, the college water works system, including pipe lines, pumps, stand pipe, bored wells with air lifts, fire hose and nozzles, etc., are available for use of the students; and the students also determine the flow in several natural streams with aid of current meters and weirs. There is a number of large and small hydro-electric plants relatively near Auburn, and visits of inspection are made by students to these plants.

II. Electrical Engineering.—In the engineering building four rooms and two offices are used by the department of electrical engineering. Two rooms are class rooms, another is used for the telephone laboratory, and the fourth is a laboratry for electrical measurements.

The wiring in this building is arranged so that alternating and direct current of various voltages for power, lighting, and experimental purposes can be delivered to any room.

In connection with the laboratories there is installed a repair and construction shop furnished with a variety of hand tools and with power driven machine tools.

A large amount of electrical testing and measuring apparatus as well as commercial machinery has recently been installed in the laboratories.

(*a*) The electrical measurement laboratory is furnished with a variety of resistance boxes, bridges, galvanometers, standard cells, condensers, etc., as well as two photometers. In addition to the laboratory instruments proper, just noted, the department

is provided with representatives of most of the types of commercial ammeters, voltmeters, and indicating and recording wattmeters for A. C. and D. C. work. There is also a 30,000 volt transformer for break-down tests of insulating materials.

(*b*) The telephone laboratory is provided with a full line of telephonic apparatus, telephones, relays, condensers, plugs, jacks, lamp and other signals, etc., representative of the Bell and a number of independent telephone companies.

Single pieces are so mounted that they can be connected up in any desired manner and thus the connections of any particular system can be made up and tested out.

Twenty cells of Edison storage battery are used to furnish energy for a board equipped for common battery and magneto service with trunking circuits. This board is a standard 100 line board equipped with one strip of twenty answering and mutiple jacks, ringing, listening keys, and cord signals for four cords.

(*c*) The laboratory is equipped with a large number of D. C. and A. C. generators, motors, and other appliances especially adapted for experimental work. In addition the equipment of the power plant is so arranged as to be readily available for purposes of instruction and investigation.

The machines for experimental work are arranged on testing platforms rendering them readily accessible. By means of a comprehensive wiring layout with individual connection boards for each machine, a wide variety of combinations of machines can easily be made.

The main power plant supplies power for operating all shops, and laboratories, pumping water, and lighting the town of Auburn. The connected motor load is a little over 250 horse power, and about 100 killowatts are used for lighting service. This plant therefore affords unusual opportunities for students to obtain practical experience in the operation of steam and electrical machinery under commercial conditions.

III. Mechanical Engineering.—The laboratory work is considered an important part of the course and is arranged as far as possible to illustrate and supplement the work as carried on in the class room.

The steam and heat engineering laboratory is located on the first floor of Broun Hall, and the following apparatus is available for instruction: A 35-horse power cross compound engine, especially arranged for experimental work; a surface condenser with air and circulating pumps attached; a 20-horse power slide valve engine; an electric headlight engine; a 15 horse power steam turbine; steam pumps, hot and cold water meters, tanks, scales, indicators, calorimeters, thermometers, pyrometers, steam gauges and apparatus for testing steam gauges.

In the line of internal combustion engineering the following apparatus is available for instruction purposes: A 12-horse power four stroke cycle engine using gasoline or kerosene, a 4½-horse power four stroke cycle kerosene engine, a 2½-horse power kerosene engine, a 2-horse power two stroke cycle gasoline engine, an Ericsson hot air engine, a motor driven air compressor with motor, a volume blower, and the necessary tanks, scales, indicators and other auxiliary apparatus necessary for making tests.

A refrigerating plant of 2½ tons capacity, including ammonia condenser and cooling coils, brine circulating system, pumps, meters, weighing scales and all apparatus needed for a study of the refrigerating cycle. The plant is driven by a steam engine, and provision is made to measure the power delivered and steam consumption of the engine.

The equipment of the power house is also available for instruction, and consists of the following: A 300-horse power poppet valve engine; a 160-horse power angle compound engine; a 60-horse power simple engine; a 200-horse power water tube boiler; a 100-horse power water tube boiler, two locomotive air pumps.

Another room on the first floor of Broun Hall has been fitted up for a laborattory for testing of materials. In it are installed a Riehle testing machine arranged for making transverse, compression and tension tests, and micrometer apparatus for measuring the deformation of the specimen under test, and an Olsen torsion testing machine with auxiliary apparatus. There is also provided a cement testing outfit consisting of a testing machine, sieves, briquette moulds, boiler, and other apparatus for testing the strength, setting properties, fineness, and specific gravity of cement.

On the second floor of Broun Hall is located a laboratory for testing fuels, furnace and illuminating gases, and lubricants. The present equipment consists of a Mahler bomb calorimeter and a Parr calorimeter, for determining the heating value of fuels, complete apparatus for collecting and testing flue and furnace gases, apparatus for determining viscosity, the specific gravity, flash point, the coefficient of friction, and other properties of lubricatng oils. A small electric motor furnishes power for grinding samples, driving blower for air blast, stirring, and other such work.

IV. Mechanic Arts.—The instruction in shop work is used as an auxiliary in technical education and as a school of manual training in the arts that constitute the foundation of most industrial pursuits. The work performed by the students is instructive in character, and is intended to give the greatest amount of instruction in principle with the least repetition of

operations and the smallest consumption of time. The work is executed from drawings and the instructor in charge of the class makes the lessons before the class, or gives such specific directions as may be necessary to enable the student to make them. This is supplemented by individual instruction.

All students in the freshman class take this shop work, three periods a week, each period being two hours long. The sophomore class takes two periods a week. The purpose is not to teach a trade, but to train the eye, the hand, and the mind to more perfect co-operation, a training which will be of value in any pursuit in life. This training involves the principles at the foundations of all trades, of equal value to the student who wishes afterwards to learn a trade.

Three-phase electric motors are used for driving the different shops, the motors receiving current from the large alternator in the power house.

(*a*) The wood department is located in a room 90 x 50 feet, and is provided with a surface planer, a variety saw, a swing cut-off saw, a boring machine, and a grindstone. There are in addition, thirty benches for carpentry work, with the necessary tools.

(*b*) The wood turning and pattern shop is located in a commodious room 40 x 60 feet, in the second story of the new power house. It is equipped with twenty-eight wood-turning lathes, a grindstone, a band saw, a buzz planer, a pattern maker's lathe, a double circular saw, a surface planer and a drum sand-papering machine.

In each of these departments special tools for occasional use are kept in a tool room for the purpose.

In addition to the regular carpentry tools in the benches each student is supplied with a set of chisels, and plane irons, with a locker to keep them in, and is held responsible for their care and condition.

(*c*) The forge shop is equipped with twenty-four down draft forges, with anvils, hammers, sledges, and other tools necessary for blacksmith work, including a punch and shear for cutting and punching iron, and a blacksmith drill. The blast is supplied by a blower driven by an electric motor. The smoke from the forges is removed through underground passages by a 60-inch exhaust fan and discharged into the chimney.

(*d*) The foundry is equipped with a 23-inch Colliau cupola, having a melting capacity of 2,000 pounds of iron per hour, the necessary molding tools for bench and floor work, benches, a core oven, ladles, molding flasks, a foundry crane, etc. A special blower driven by an electric motor is provided to furnish air blast for the cupola. There is also a brass furnace with

crucibles, crucible tongs and the appliances necessary for making brass castings.

(*e*) The machine shop is a room 30 x 100 feet, and is equipped with ten 14-inch, two 16-inch and one 18-inch engine lathes, one 10-inch speed lathe, a 20-inch drillpress, a 10-inch sensitive drill, a 16-inch shaper, two iron planers, one 22-inch by 5 feet and the other 26-inch by 6 feet, a back geared universal milling machine, with vertical milling attachment, a water tool grinder, a bench grinder, a universal grinding machine, a universal cutter and reamer grinder, a twist drill grinder, and two power hack saws. Four of the engine lathes have compound rests, three have taper attachments, and one is fitted with a turret and a large number of special tools and fixtures which practically convert it into a manufacturing lathe, and serve to illustrate the methods of manufacture by duplicate parts.

For chipping and filing, eighteen benches are fitted with vises and each student is supplied with hammer, chisels, files and such other tools as he may need, and a locker in which to keep them. A gasoline engine is installed in one end of the shop, and is used for driving when the steam plant is not running. The tool room is supplied with general machinist tools, such as chucks, drills, reamers, taps, dies, gauges, jigs, and special tools. A convenient room is supplied with lockers for keeping clothes and basins supplied with hot and cold water for the use of the students. The different shops are equipped with electric lamps, and current is furnished when necessary.

V. Mining Engineering, Geology, Mineralogy.—The Department of Mining and Geology occupies parts of the first and third floors in the east wing of the Engineering Building. On the third floor the department occupies four rooms and office. The four rooms are all of about the same size, occupying about 960 square feet of floor space each; (1) lecture and recitation room, (2) mineralogical laboratory, (3) geological exhibit room, (4) drafting room. The class room has a seating capacity of sixty-four. The drafting room can accommodate twenty simultaneously. Here instruction is given in mechanical drafting, the calculating and plotting of field notes and in graphical design of mine structures.

In the mineralogical laboratory there are accommodations for thirty-six. Each student is supplied with drawer, locker, and the necessary equipment for studies in crystallography, mineralogy and lithology. In the exhibit room adjoining is maintained a good type collection of minerals and lithological specimens as well as working specimens. There is also a collection of fossils and casts illustrating historical geology. Other equipment of the geological department consist of wooden, transparent, and skeleton crystal models; specific gravity balan-

ces; contact and reflecting goniometers; a photographic microscope and slides for both microscope and stereopticon lanterns.

VI. Ore Dressing.—The ground floor is occupied entirely by the metallurgical laboratory. The laboratory is well equipped with ore dressing plants. The concentrating plant consists of a gyratory crusher, two sets of roll crushers, two bucket elevators, four trommels or revolving screens, two classifiers, four Hartz jigs and a seven-foot Wilfley concentrating table.

The stamp mill is of full size Nissen type, circular discharge and interior amalgamating plate. The outside amalgamating plate is full size, being ten feet long. The stamp mill and concentrating plant are fed from their respective bins by two different types of automatic feed. The ore before entering the bin is crushed to proper size by a Blake jaw crusher. The model cyanide plant illustrates the leaching department of the cyanide process and the extractor box work. It consists of one solution tank, two sand tanks, with false bottoms and filters, one gold tank, and a set of extractor box compartments of the up-flow type.

Besides the equipment already mentioned there is an automatic sampler. The cement floor in this department gives a good surface for illustrating coning and quartering in the process of hand sampling.

A twenty-horse power motor is the source of power for this laboratory. Shafting, belting and gears of various kinds transmit the power to the various machines so that a large variety of mechanism is illustrated.

VII. Mechanical Drawing and Machine Design.—The department of mechanical drawing and machine design is supplied with equipment for teaching mechanical drawing, descriptive geometry, kinematics and machine design.

A convenient cabinet is supplied with a complete set of Schroeder's descriptive geometry models for demonstrating the principles of descriptive geometry and mechanical drawing. A small reference library and a library of selected catalogues of manufacturers, which is being established for the use of students in advanced machine design, occupy a suitable case. A Beck vertical wall file, 36 x 48 inches, for filing commercial blue prints, is filled with selected blue prints furnished by prominent manufacturers, and is made use of by students in machine design.

A number of kinematic models and a large collection of engineering specialties, sectioned to show interior, which were donated by the various manufacturers, occupy a sectional case, and are used in elementary work in machine design and mechanical drawing. The filing envelopes, which contain the

students' drawings are kept in alphabetical arrangement in a case of drawers.

This department is equipped with an outfit for making blue prints, consisting of two sun printing frames 18 x 24 inches and 30 x 42 inches, each mounted on a car and track and suitable conveniences for washing and drying the prints.

All students in the lower classes are required to take drawing, a study of which tends to discipline the mind as well as to train the eye and hand to accuracy of observation and execution. Four large well-lighted drawing rooms which will accommodate (at one period) two hundred and fifty students, are provided with tables, lock boxes, etc. The drawing rooms have been equipped with one hundred and fifty new drawing tables of the most modern pattern.

VIII. Architecture.—The department of architecture is provided with four well lighted rooms in the Main Building. The drafting room is open from 8:00 A. M. to 10:00 P. M., and each student has his own table to which he may come at any time, and a steel locker for materials; members of all classes are together in this room, and the younger men find inspiration in the work of the older ones. The studio for freehand drawing and water color painting is furnished with adjustable tables and a good collection of models and plaster casts of sculpture and architectural details.

The architectural library is conveniently located with respect to other rooms of the department, and the books, journals, and drawings are freely accessible to students during working hours; under proper restrictions books may also be taken out for home use. The equipment of the lecture room includes a lantern and a carefully selected collection of slides. Quarters for clay modeling are fitted out in Broun Hall.

For advanced work in construction the department of architecture has at its disposal the resources of the various engineering laboratories. In the civil engineering testing laboratory the student investigates the properties of materials, such as cement, stone, brick and steel; in the mechanical laboratory he becomes acquainted with the processes involved in the heating and ventilation of buildings, and the operation of steam and gas engines; in the electrical laboratory he gains a knowledge of dynamo electric machinery, and methods of wiring and illumination of buildings.

On file in the office of the department is a growing collection of working drawings and specifications contributed by practicing architects. A practically permanent display of rendered drawings is maintained on the walls, student problems in design being hung as completed for purposes of inspection and criticism.

COLLEGE OF AGRICULTURAL SCIENCES.

IX Practical Chemistry.—The chemical apparatus recently purchased for the chemical laboratory consists of a full supply of the most improved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to the first class laboratories, there have been imported a new and improved Schmidt and Heinsch's polariscope, ten short-arm balances of latest pattern, Bunsen's spectroscope, Abbe refractometer, and other instruments for delicate and accurate work.

The investigations that are undertaken in this laboratory by scientific experts in connection with the work of the agricultural experiment station, are of special value to advanced students, and afford them unusual opportunities to learn the methods of scientific research.

The building contains a large general laboratory that accommodates eighty students, a special laboratory for seniors that will accommodate forty students, a lecture room with a capacity of one hundred and fifty seats, and nine other rooms, all appropriated to instruction and research in chemistry.

The State chemical laboratory for the official analysis of fertilizers is connected with this department.

X. Agriculture.—The agricultural experiment station established in connection with the Institute, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professors in the field where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

The farm contains 304 acres.

XI. Botany.—The department of Botany occupies the western half of the third floor of Agricultural Hall. The rooms in use include a lecture room having seats for sixty-four students, a general laboratory accommodating forty-five students, a smaller laboratory for bacteriology and pathology accommodating twenty students, two small laboratories for professors and advanced students, two offices, a dark room, and store room. The general laboratory is supplied with microscopes, glassware, and the general equipment of apparatus and materials necessary for gross and microscopic work in plant morphology. The equipment for work in plant physiology and

pathology has been very materially increased by the installation of much new apparatus needed for quantitative work in these subjects. These additions include autoclaves, sterilizers, incubator, drying oven, automatic water still, constant temperature baths, and ovens, Kjeldahl nitrogen determination apparatus, distilling and extraction apparatus, and many smaller pieces. These accessions to the equipment provide facilities for accurate work, under controlled conditions, in the chemical phases of plant physiology and for cultural studies in bacteriology and plant pathology and permit expansion and development of the courses offered in these subjects to a degree commensurate with their importance.

The greenhouse of the department has a floor space 30 x 110 feet, with an adjoining laboratory room 30 x 30 feet. It is used for experimental work in plant pathology and plant physiology. The facilities provided are sufficient to permit the growth of ample material for class use in these subjects as well as for the investigations of special problems by the staff.

The botanic garden contains a fairly representative collection of the native trees and shrubs of the state, and it is planned to make a collection of native medicinal plants. A portion of the garden will also be used as an outdoor experimental plat for the growing of materials employed in the work of instruction or in research.

XII. Pharmacy.—The laboratory of this department occupies the first and second floors of the annex to the chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations. The equipment for the laboratory includes a Laurent Polariscope, a Pulfrich refractometer, a vacuum distilling and drying apparatus, consisting of ½ horse power air pump, vacuum chamber, condenser, and Bruhl receiver for fractional distillation under diminished pressure, a three-horse power electric motor, a complete outfit for organic combustion work, and three chemical balances.

On the third floor is located the lecture room, storeroom, and drug mill room.

The new pharmaceutical laboratory on the basement floor of the pharmaceutical building is fitted with steam and has a full equipment for research work in pharmaceutical chemistry.

The students work in the laboratory with the professor from five to eight hours, six days in a week.

XIII. Horticulture.—A well-lighted and heated one-story brick building adjoins the greenhouses. It affords space for about 40 students at one time for practical work in grafting, seed germination, seed testing, transplanting, grading, packing, spray mixing, etc. It contains also a complete equipment for

instruction in canning. The two greenhouses, 20 x 80 feet are modern in construction. They contain a varied collection of the leading bedding and decorative plants, and afford facilities for practical instruction in plant propagation, the forcing of vegetables and cut flowers, and greenhouse management. Hot beds and cold frames of cement construction are also at hand. Instructors also make use of the experimental orchards, vineyard, garden, and ornamental plantings on the grounds of the department for practical instruction. Accurate experiments in the culture of various fruits and vegetables adapted to the state are constantly in progress. The departmental library embracing many of the standard works, magazines, bulletins and other equipment are accessible to advanced students under the usual regulations.

XIV. Entomology, Zoology.—The department for teaching these subjects is located on the first floor of Comer Hall. A combined lecture and laboratory room provides accommodation for 70 men at a lecture or 25 in laboratory work. It is well equipped with apparatus for microscopic and dissection work, and to supplement this, charts, models and preserved specimens of invertebrate animals are used.

In addition the course in Entomology has at hand in the station laboratory, adjoining the class room, a valuable and growing collection of insects especially of the economic species of Alabama. In connection with the range of greenhouses there is also a large workroom for experimental and demonstrational work with insecticides and an insectary 16 x 40 feet within which the study of insect problems may be conducted at any time under controllable conditions. This room is also used in connection with the college apiary to demonstrate equipment and apparatus as used in modern beekeeping, a part of the course in Entomology. The farm, orchards, vineyards and truck gardens afford a convenient opportunity for the observation, study and control of such economic pests as may occur therein. The student in Entomology is made familiar with several types of hand and power spraying and dusting apparatus, also spraying accessories which are recognized as essential in successful agriculture.

A reference library, containing general and standard works upon entomology and zoology and publications of the government and State experiment stations is accessible to students.

XV. Animal Husbandry.—The Animal Husbandry Farm contains about 260 acres. Pure bred herds of Angus, Hereford, Shorthorn, and Jersey cattle, Berkshire, Duroc-Jersey, and Poland China hogs, a Percheron Stallion, and several teams of work mules are kept on this farm for experimental work, and

for use in instructing the college students. The students visit the Animal Husbandry farm with their instructors for instruction in judging, feeding, and management of the various classes of live stock. During the junior and senior years the students make trips to several of the best live stock farms in the State to study the different types of animals kept on the farms and the live stock problems of the breeders. The students are also required to make trips during the senior year to live stock shows and attend some of the leading live stock sales in the State.

ACADEMIC WORK.

XVI. History.—All advanced work in history is conducted by the laboratory method. This plan has been successfully employed in the junior, the senior, and the graduate classes. A large and well-lighted room has been set apart for this work in the new library building where all the resources of the rapidly growing library are easily accessible. This room is equipped with maps, diagrams, charts and suitable tables and chairs. The library is a depository for all government publications. These and other books on American history, with which it is well supplied, offer abundant material for research work in the history of our country. The publications collected by the experiment station constitute valuable material for study in industrial history.

XVII. Physics.—The physical laboratory occupies two rooms one of these being permanently darkened for experimental work in light. It is equipped with numerous standard instruments of precision, such as verniers, micrometers, cathetometers, an horizontal comparator, a Kater's revision pendulum, balances, etc., and a quantity of minor apparatus. Recently there have been added a concave grating spectograph, a large induction coil of 12-inch spark, and other apparatus of value.

XVIII. Military Tactics.—Instruction in this department is given in conformity with the Act of Congress. Students receive the benefit of regular military drill, and in addition, the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties. The department is supplied with cadet rifles and accoutrements for the corps.

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

XIX. Physiology and Veterinary Science.—The veterinary department occupies a separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, thoroughly equipped laboratories for work in bacteriology, milk and meat inspec-

tion, and with museum containing skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

There is a separate dissecting room with cement floor and north roof light, constructed especially for this department. This laboratory is used by the professor and students each afternoon for three months.

BUILDINGS.

The Main Building is 160 x 71 feet, and contains forty-five rooms. It contains lecture rooms, administration offices, physical laboratory, museum, armory, etc.

LANGDON HALL.

This is a two-story building 90 x 50 feet. The second story is the audience hall, used for commencement and other public occasions.

POWER HOUSE AND SHOPS

The first story of Langdon Hall is appropriated to the laboratory of first year wood work in mechanic arts.

The machine shop, forge shop, foundry, and boilers are installed each in separate buildings. A handsome building, two-stories in height, pressed brick and stone trimmings, has been constructed for occupation by the power plant on the first floor and by the pattern making department on the second floor. The dynamo laboratory occupies a separate building.

A commodious boiler house has been built. It is of fire-proof construction and is supplied with track and cars for handling coal from the bin to the boiler. Scales are provided for keeping accurate account of the coal consumed.

BROUN ENGINEERING HALL.

The alterations and additions to the William LeRoy Broun Engineering Hall were completed and the building occupied in September, 1910. The finished structure is 250 feet long, 50 to 90 feet deep, and three and four stories in height, enclosing a floor area of 43,500 square feet. In construction this building is practically fire proof and in exterior design conforms in general to the other buildings on the campus. The walls are laid up in selected red brick, with limestone and terra cotta trimmings.

Offices, lecture rooms, and laboratories for the departments of mechanical, electrical, mining and civil engineering, machine design and drawing, are located within this building, and all the interior accommodations are especially arranged to facilitate the special work of each department.

This building was designed and superintended by the department of architecture.

CHEMICAL LABORATORY.

The Chemical Laboratory is a two-story structure, 40 x 60 feet, with a rear projection, 35 x 60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and extra terra cotta ornamentations.

The chemical laboratory for the agricultural experiment station occupies a building 60 x 26 feet, and is appropriated exclusively for chemical investigation and research.

PHARMACY BUILDING.

This is a three-story brick building containing rooms and laboratories for the department of pharmacy.

SMITH HALL.

The Otis D. Smith Dining Hall, constructed of stone and pressed brick, is two stories in height, and one hundred and forty feet in length. It will accommodate three hundred in the dining hall, and forty in the dormitory above. The style is semi-colonial.

CARNEGIE LIBRARY.

The library building is a handsome structure of classical outline, monumental in its general effect.

AGRICULTURAL BUILDING.

A handsome and commodious building is occupied by the departments of (1) agronomy, (2) horticulture, (3) botany, (4) entomology, and (5) animal husbandry, together with a separate set of buildings for practical work in each of these departments. It is the general opinion that there is no superior, if equal, group of buildings for agricultural purposes in the South. The building is three stories in height and is constructed of pressed brick with stone trimmings.

ALUMNI GYMNASIUM.

The central unit of the Gymnasium presented to the College by the Alumni was dedicated February 22nd, 1916. It is an attractive three-story structure, 110 x 60 feet, built of brick and stone. The first floor contains the dressing rooms and showers for the athletic teams, the students' lockers and showers being located on the second floor. The main Gymnasium hall is on the third floor.

It is planned to complete the building at an early date.

REQUIREMENTS FOR ADMISSION

APPLICATION.

All applicants for entrance to any departments of the College should make application to the Registrar as early as possible before the opening of the session (September 11, 1918). Those who desire to be admitted by certificate should make application as soon as possible after their graduation from the High School. To all applicants a blank will be furnished which they are expected to fill out and file with the Registrar in advance of entrance.

All applicants for admission must present testimonials of good moral character and those who come from other colleges must bring certificates of honorable discharge or furnish other testimonials of good moral character.

Entrance examinations will begin on Monday, September 9th. These examinations will be required of all students entering college for the first time, except those who bring certificates from accredited high schools or preparatory schools or from reputable colleges or universities.

REGISTRATION.

Students upon their arrival in Auburn should report promptly to the President.

All students are required to register on the first day of the session and on the opening day after the Christmas vacation. Registration at a later date involves additional administration work to the College and seriously affects the work of the student. An additional fee of $2.00 will be charged for registration after September 14th and January 2nd. No exception will be made to this regulation.

All students, whether applicants for regular or irregular courses, are required to report for classification to the Chairman of the Committee on Entrance Examinations who will give them cards of admission to the classes to which they are assigned.

ADMISSION TO THE FRESHMAN CLASS.

To enter the freshman class the applicant must be not less than fifteen years of age.

For unconditional admission to any bachelor's course, or to the Veterinary College, a student will be required to present fourteen entrance units.

A unit is defined as a high school or preparatory course of five periods of forty to forty-five minutes each, weekly, throughout the academic year of nine months. In science courses, two laboratory periods are counted as the equivalent of one

recitation period. Credits of less than one unit may be granted for courses that do not run full time. No more than four units will be given for one year's work in the high school.

Students who wish to enter the regular courses and are deficient in entrance requirements may enter and be classified as conditioned students, provided their deficiencies do not exceed two units.

Of the fourteen units required for admission in full standing to the freshman class, seven and a half are prescribed as follows:—

Mathematics 3½ units:

High School Arithmetic.
Algebra, complete.
Plane and Solid Geometry.

English 3 units:

High School Grammar.
Rhetoric and Composition.
History of American or English Literature.
Classics.

High School History of the United States 1 unit.

ENTRANCE SUBJECTS.

Credit for admission will be given for any high school subject properly taught.

Algebra	1½ units	Virgil	1 unit
Advanced Arithmetic	½ unit	Greek	1 to 2 units
Plane Geometry	1 unit	Commercial Geography	½ unit
Solid Geometry	½ unit	Physical Geography	½ unit
Trigonometry	½ unit	Agriculture	½ to 2 units
High School Grammar	½ unit	Zoology	½ to 1 unit
Rhetoric and Composition	1½ units	Physiology	½ to 1 unit
History of American or English Literature	1 unit	Biology	½ to 1 unit
Advanced U. S. History	1 unit	Physics	½ to 1 unit
Ancient History	1 unit	Chemistry	½ to 2 units
Mediaeval and Modern History	1 unit	Botany	½ to 1 unit
English History	1 unit	Civil Government	½ to 1 unit
Pedagogy	½ unit	Shop Work	½ to 2 units
Psychology	½ unit	Mechanical Drawing	½ to 2 units
French	1 to 2 units	Freehand Drawing	½ to 1 unit
German	1 to 2 units	Music	½ to 3 units
Spanish	1 to 2 units	Bookkeeping	½ to 1 unit
Latin Grammar	1 unit	Stenography and Typewriting	½ to 1 unit
Caesar	1 unit	Domestic Science	½ to 2 units
Cicero	1 unit		

SPECIAL OR IRREGULAR COURSES.

In accordance with the requirements of the American Conference of Pharmaceutical Faculties, for entrance to the two-year course in pharmacy leading to the degree of Graduate in Pharmacy, at least two years of high school work are required. Fourteen entrance units are required for admission to the three-year course in pharmacy leading to the degree of Pharmaceutical Chemist, and to the pre-medical course.

For entrance to the two-year special course in architecture no examination is required, but the applicant must be not less than twenty-one years of age and have had a satisfactory experience in the office of a practicing architect. He must show by drawings that he possesses a working knowledge of the "Orders" and satisfy the department that his preparation in other lines has been adequate to enable him to carry the work with success.

For entrance to any special or irregular course, not specified above, the applicant must have one of the following four requirements:

1. He must be 21 years old, or
2. He must have 14 units, of which 2 may be conditioned, or
3. He must present a statement from the principal of his last school advising his admission to the course, or
4. He must have been out of school during the previous year engaged in some practical line of work akin to the course desired, or serving in the army.

He must also in every case satisfy the college that he is *prepared to do the work outlined in the course.*

Students are urged to take the regular four-year courses whenever it is possible, and to remain in the high school until prepared for them.

Special or irregular courses are intended for mature students who, because of special circumstances, are not able to take the regular college work. These courses are *not short cuts* to the longer ones, and work done in them does not count toward entrance units for courses that require 14 units for admission.

ADMISSION BY CERTIFICATE.

Students presenting official statements from the schools listed below will be given entrance credit for all work completed. Those having 14 units will be admitted to full standing in the freshman class. Those having 12 units will be classed as conditioned freshmen, and the remaining 2 units must be removed by the beginning of their junior year. Not more than four units will be given for any one year's school work.

All students are strongly advised to complete the full course given in their schools before applying for admission to college.

CERTIFICATE SCHOOLS.

1. State Normal Schools.
2. District Agricultural Schools and County High Schools.
3. The following city, denominational and private schools in Alabama:

Alexander City High School, Alexander City----J. M. Pearson
Andalusia High School, Andalusia----L. E. Brown
Anniston High School, Anniston ----D. R. Murphey
Green University School, Athens----W. K. Green
Bay Minette High School, Bay Minette----S. M. Tharpe
Bessemer High School, Bessemer----L. L. Vann
Central High School, Birmingham----C. A. Brown
High School, Boaz----George M. Boman
Snead Seminary, Boaz----L. F. Corley
Brewton High School, Brewton----W. I. Powers
Downing Institute, Brewton ----J. M. Shofner
High School, Camp Hill----B. H. Wyatt
Industrial Institute, Camp Hill----L. Ward
High School, Carbon Hill ----
Carrollton High School, Carrollton----W. G. Cameron
High School, Citronelle ----Norman Olsen
High School, Collinsville----J. H. Riddle
High School, Cuba----B. W. Douglas
Decatur High School, Decatur----J. F. Collins
Demopolis High School, Demopolis----K. G. Hoover
Dothan High School, Dothan----P. W. Hodges
High School, Elba----J. F. Scofield
High School, Ensley ----
Eufaula High School, Eufaula----H. L. Upshaw
Eutaw High School, Eutaw----A. F. Jackson
High School, Florence----F. T. Appleby
Gadsden High School, Gadsden----W. C. Griggs
Gaylesville Academy, Gaylesville ----John D. Ray
Geneva High School, Geneva----J. E. Cheatham
Georgiana High School, Georgiana----R. C. Reese
High School, Girard ----R. K. Hood
High School, Gordo----Rowe Watson
Greenville High School, Greenville----C. B. Gamble
Haleyville High School, Haleyville----L. L. James
Huntsville High School, Huntsville----R. C. Johnston
LaFayette High School, LaFayette----E. G. McGehee
High School, Lanette----W. L. Leatherwood
High School, Leeds----J. W. Ellenburg
High School, Livingston----Celia Tompkins
High School, Madison----J. E. Parks
Mobile High School, Mobile----S. S. Murphy

University Military School, Mobile.....J. T. Wright
McGill Institute, Mobile .....Wm. A. Kerrigan
Sidney Lanier High School, Montgomery.....W. R. Harrison
Barnes' School, Montgomery.....E. R. Barnes
Edgar's School for Boys, Montgomery.....R. B. Edgar
University School, Montgomery.....J. M. Starke
Baptist Collegiate Institute, Newton.....J. J. Yarbrough
High School, Opelika.....S. O. White
Opp High School, Opp.....W. L. Hicks
High School, Ozark.....E. J. Laney
High School, Pell City.....J. L. Aders
High School, Piedmont.....L. Leftwich
High School, Pine Apple.....C. H. Newsom
Roanoke High School, Roanoke.....B. B. Baker
High School, Samson.....W. B. Spear
High School, Selma.....A. F. Harman
High School, Sheffield.....L. E. Creel
Slocomb High School, Slocomb.....E. T. Cato
High School, Sulligent.....J. D. Samuels
Talladega High School, Talladega.....D. A. McNeill
Thomasville High School, Thomasville.....J. S. Rozier
Thorsby Institute, Thorsby.....S. H. Herbert
High School, Troy.....Jno. R. McLure
High School, Tuscaloosa.....J. H. Foster
Tuscumbia High School, Tuscumbia.....R. E. Thompson
Tuskegee High School, Tuskegee.....J. B. Murphy
Union Springs High School, Union Springs.....E. S. Pugh
High School, Uniontown.....S. R. Logue

4. Schools in other States which are accredited to institutions of equal rank with the Alabama Polytechnic Institute.

ADVANCED STANDING.

Advanced standing in any subject is not given on preparatory school credits, and can be obtained only by an examination conducted by the professor of that subject.

Advanced standing is given for work done in other colleges of similar rank, and for work done by graduates of the State Normal Schools at Florence, Jacksonville, Livingston and Troy, of Marion Institute, St. Bernard College, of Spring Hill College and the Alabama Presbyterian College, of Anniston.

ADMISSION OF YOUNG WOMEN.

Young women of mature mind and character, who are at least seventeen years of age, will be admitted. Upon the approval of the faculty, applicants may be admitted at an age less than seventeen years if a resident of Auburn will act as guardian.

XVII. TWO-YEAR COURSE IN APPLIED ELECTRICITY.
XVIII. COURSE FOR ROAD FOREMEN AND INSPECTORS.
XIX. ONE-YEAR COURSE IN WIRELESS TELEGRAPHY.
XX. TWO-YEAR COURSE IN MINING.
XXI. TWO-YEAR COURSE IN ARCHITECTURE.

Special Course in Agriculture.—Young men over twenty-one years of age who desire to study agriculture will be permitted without examination to enter classes in agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied. They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiment station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus in one year acquire valuable practical knowledge of scientific agriculture.

Course I. includes the principles and applications of the sciences that directly relate to civil engineering, and is adapted to those who expect to enter that profession.

Course II. includes, besides the general principles and applications of the sciences, a special course in the applications of electricity and mechanics, and is arranged to fit men for the profession of electrical engineering.

Course III. furnishes instruction in steam engineering, materials of construction, drawing and machine design, electrical engineering, together with laboratory work. The course is intended to qualify men to fill positions in the manufa turing industries.

Course IV. includes theoretical and practical instruction in geology, mineralogy, chemistry, civil and electrical engineering, as applied to mines, mapping, exploration, boring, ventilation timbering, and all the operations pertaining to the profession of mining engineering.

Courses V. and VI. have been arranged to give theoretical and practical knowledge of architecture in order to enable students to take advantage of office opportunities upon graduation. It embraces architectural drawing and design, history, and ornamental architectural engineering, and office practice.

Course VII. provides for thorough theoretical and practical instruction in pure and technical chemistry and metallurgy, and in scientific branches relating thereto. Students taking this course also pursue the study of German or French during the junior and senior years, and are thus prepared to utilize for reference and for study, scientific journals and works published in those languages.

Course VIII. includes theoretical and practical instruction in those branches that relate to agronomy, horticulture, animal husbandry, botany and entomology, and is especially adapted to those who intend to devote themselves to agricultural and horticultural pursuits.

Course IX. includes, besides the general education of Course XI. of the lower classes, a special course in pharmacy and chemistry, and is adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Course. X. has been arranged for students who desire preparation for chemical engineering work with special reference to planning, construction and operation of plants employed in the chemical industries, such as manufacture of fertilizers, sugars, ceramics, oils and fats, and their products, coal by-products, etc., etc.

Course XI. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as those who intend ultimately to engage in teaching or in some commercial or professional business.

Course XII. has been established to meet the demand of the young men of the South who desire to become educated veterinarians, and for students who desire to prepare for the study of human medicine.

The shorter courses have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years, and to take one of the regular degree courses.

DEGREES.

Each applicant for a degree must submit his application and course of study by the first of October in his senior year.

No degree will be conferred upon a candidate *in absentia* unless he is officially excused for providential reasons.

The degree of Bachelor of Science will be granted to those students who satisfactorily complete one of the regular four-year courses.

A student who completes the work of the four-year course in veterinary medicine and submits a satisfactory thesis, will be granted the degree of Doctor of Veterinary Medicine (D. V. M.)

A student who completes the work of the two-year course in Pharmacy and submits a satisfactory thesis will be granted the degree of Graduate in Pharmacy (Ph. G.)

A student who completes the work of the three-year course in pharmacy and submits a satisfactory thesis, will be granted the degree of Pharmaceutical Chemist (Ph. C.)

CERTIFICATES.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, with approval of the faculty, may be awarded a certificate of proficiency in that subject.

Students who complete one of the two-year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

No certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English. Every applicant for a certificate will be required to stand this special examination during the final year.

GRADUATE COURSES.

A more extended course of study may be taken by a graduate of this institution or of any college of equal grade. The completion of a course which leads to a post-graduate degree of Master of Science requires one year's residence, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the faculty.

The candidate must also present to the faculty a satisfactory thesis showing independent investigation upon some subject pertaining to his course, and must pass an examination at the close of each term, on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the faculty.

The subject for the thesis must be submitted to the faculty for approval prior to January first, and the thesis given to the professor by May first.

Applicants for a post-graduate degree and special students in post-senior studies are subject to the same general regulations as other students, and *pay the same fees,* but are exempt from all military duty.

The following courses are prescribed for the degrees named:

1. *Master of Science.*—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class; or in special cases, with the approval of the faculty, a student may devote his full time to work in two departments, in each of which he has completed the full senior course.

2. *Master of Science in Pharmacy.*—Pharmacy and Chemistry.

PROFESSIONAL DEGREES IN ENGINEERING.

I. Degrees in Course.—The professional degree of Civil Engineer, Electrical Engineer, Mechanical Engineer, Chemical Engineer, or Engineer of Mines will be conferred upon graduate students upon the satisfactory completion of the course of study prescribed, a residence of one year at the institute being required for the completion of those courses.

A written application stating the degree desired and the course of study selected must be submitted to the faculty at the beginning of the session. A satisfactory thesis must be submitted by May first.

The following courses of study are prescribed for the degrees named:

Civil Engineer.—Civil Engineering and any two subjects selected from the following: Mathematics, analytical mechanics, mechanical engineering, electrical engineering, mining engineering, bacteriology.

Electrical Engineer.—Electrical Engineering and mechanical engineering, or electrical engineering, mathematics and civil engineering.

Mechanical Engineer.—Mechanical engineering and machine design, or mechanical engineering, mathematics and mining engineering.

Chemical Engineer.—Electro-chemistry and advanced analytical or organic chemistry, together with one or more subjects selected from the following: Mechanical engineering, machine design, electrical engineering, mining engineering.

Engineer of Mines.—Graduate students who have completed the course in mining engineering may apply for this degree. The subjects to be pursued are mining engineering, civil engineering, and one other technical subject relating to mining and metallurgy, and approved by the faculty.

II. Degrees for Professional Work.—The above named professional degrees may be conferred upon graduates of the Alabama Polytechnic Institute in civil, electrical, mechanical, chemical and mining engineering, upon complying with the following requirements:

1. The candidate must have spent at least four full years in the practice of that branch of engineering in which he graduated.

2. An approved thesis must be submitted to the faculty not later than May 1st of the year in which the degree is sought.

3. The student must show that he has filled satisfactorily a responsible position in charge of important engineering work. Written testimonials from employers or clients will be accepted as evidence of satisfactory service.

4. A written application, stating the degree desired, and giving a report or outline of the professional work upon which the application is based, must be submitted not later than January 1st of the year in which the degree is to be granted.

III. Special Students in Graduate Studies.—Students who are not graduates, but are qualified in special subjects to prosecute graduate studies, and desire to prepare themselves more thoroughly for professional or special work in any of the departments of engineering, in chemistry, pharmacy, veterinary science, or other subjects in which instruction is given, may, when qualified, with approval of the faculty, enter this higher department of study and have all the privileges of post-graduate students.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

Two degrees will not be given in the same year.

LABORATORIES.

Laboratory instruction constitutes an important feature in the course of education provided for the students and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. Civil Engineering, Field Work, Surveyingg, Etc.
II. Electrical Engineering, Telephone Engineering.
III. Mechanical Engineering.
IV. Mechanic Arts.
V. Mining Engineering, Mineralogy.
VI. Ore Dressing.
VII. Architecture, Architectural Engineering.
VIII. Technical Drawing, Machine Design.
IX. Chemistry, Metallurgy.
X. Agronomy.
XI. Botany.
XII. Pharmacy, Pharmaceutical Chemistry.
XIII. Horticulture.
XIV. Entomology, Zoology.
XV. Animal Husbandry.
XVI. History, Latin.
XVII. Physics.
XVIII. Military Tactics.
XIX. Veterinary Science, Bacteriology, Physiology.
XX. Wireless Telegraphy.

Note:—Special work in Latin or History may be taken by students in the general course as a substitute for laboratory work.

COURSES OF INSTRUCTION

The numbers in the Courses of Instruction refer to the subjects as described under "Description of Courses." The following abbreviations are used: Ac., Academic Departments; Eng., College of Engineering and Mines; Agr., College of Agricultural Sciences; Ed., Department of Agricultural Education; Vet., College of Veterinary Medicine and Surgery. The numbers in columns indicate the hours per week.

English, German, French, Latin or Spanish may be taken as language in freshman, sophomore, junior and senior classes, provided there is no conflict in schedule. Approved courses in Education may be substituted for language in junior and senior classes in all courses.

A student, who, on surgeon's certificate, is excused from any subject will be required to substitute other work approved by the faculty.

GENERAL COURSE

Freshman Class.

First Term.

English (Ac. 102a)	3
History (Ac. 201)	2
Latin (Ac. 209) or Spanish or Science	3
Mathematics (Ac. 401)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 351)	6
Military Drill (Ac. 600)	3

Second Term.

English (Ac. 102b)	3
History (Ac. 201)	2
Latin (Ac. 209) or Spanish or Science	4
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 352)	6
Military Drill (Ac. 600)	3

Third Term.

English (Ac. 102b)	3
History (Ac. 201)	2
Latin (Ac. 209) or Spanish or Science	4
Mathematics (Ac. 402)	5
Chemistry (Agr. 101)	4
Drawing (Eng. 601)	5
Mechanic Arts (Eng. 353)	6
Military Drill (Ac. 600)	3

Sophomore Class.

Latin (Ac. 210) or Spanish or Science	5
English (Ac. 103a)	3
History (Ac. 202)	2
Physics (Ac. 504)	3
*Mathematics (Ac. 403)	5
Botany (Agr. 301) or other Science	6
Chemical Lab'y (Agr. 110a) or other Lab'y	6
Military Drill (Ac. 600)	3

Second Term.

Latin (Ac. 210) or Spanish or Science	5
English (Ac. 103c)	3
History (Ac. 202)	2
Physics (Ac. 504)	3
*Mathematics (Ac. 403)	5
Botany (Agr. 301) or other Science	6
Chemical Lab'y (Agr. 110a) or other Lab'y	6
Military Drill (Ac. 600)	3

Third Term.

Latin (Ac. 210) or Spanish or Science	5
English (Ac. 103c)	3
History (Ac. 204)	2
Physics (Ac. 504)	3
*Mathematics (Ac. 404)	5
Botany (Agr. 301) or other Science	6
Chemical Lab'y (Agr. 110a) or other Lab'y	6
Military Drill (Ac. 600)	3

*With approval of faculty other work may be substituted.

JUNIOR CLASS.

First Term.

English (Ac. 107) (a) 3
Latin (Ac. 211) (a) or Civics ..3
French (Ac. 301a) (a) or Spanish 4
German (Ac. 305a) (a) 4
Education 3
Chemistry or other Science ...3
Military Tactics (Ac. 601) 1
History Lab'y (b) (Ac. 206) ..6
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 107) (a) 3
Latin (Ac. 211) (a) or Civics ..3
French (Ac. 301b) (a) or Spanish 3
German (Ac. 305b) (a) 3
Education 3
Chemistry or other Science ...3
Military Tactics (Ac. 601) 1
History Lab'y (b) (Ac. 206) ...6
Military Drill (Ac. 600) 3

Third Term.

English (Ac. 107) (a) 3
Latin (Ac. 211) (a) or Civics ..3
French (Ac. 301c) (a) or Spanish 4
German (Ac. 305c) (a) 4
Education 3
Chemistry or other Science ...3
Military Tactics (Ac. 602) 1
History Lab'y (b) (Ac. 206) ..6
Military Drill (Ac. 600) 3

(a) Approved course in Education may be substituted for one language.

(b) The student may substitute laboratory of any department of natural science for which he may be qualified.

SENIOR CLASS.

First Term.

English (Ac. 109) (a) 2
Education 3
Latin (a) (Ac. 212) or Cons. History (Ac. 205) 3
French (Ac. 302a) or Spanish (Ac. 310) (a) 4
German (Ac. 306a) (a) 4
Geology (Eng. 441) (a) 2
History Lab'y (b) (Ac. 206) ..6
Military Science (Ac. 603) 1

Second Term.

Economics (Ac. 2) (a) 2
Education 3
Latin (a) (Ac. 212) or Cons. History (Ac. 205) 3
French (Ac. 302b) or Spanish (Ac. 310) (a) 3
German (Ac. 306b) (a) 3
Geology (Eng. 441) (a) 2
History (b) (Ac. 206) 6
Military Science (Ac. 604) 1

Third Term.

Economics (Ac. 202) (a) 2
Education 3
Latin (a) (Ac. 212) or Cons. History (Ac. 205) 3
French (Ac. 302c) or Spanish (Ac. 310) (a) 4
German (Ac. 306c) (a) 4
Geology (Eng. 441) (a) 2
History Lab'y (b) (Ac. 206) ...6
Military Science (Ac. 605) 1

(a) Education may be substituted for one language or for Geology.

(b) The student may substitute laboratory of any department of natural science for which he may be qualified.

COLLEGE OF ENGINEERING, MINES AND ARCHITECTURE.

The following studies in the freshman class are prescribed in the courses in civil, electrical, mechanical, mining and chemical engineering, and chemistry and metallurgy.

FRESHMAN CLASS.

First Term.

English (Ac. 102a, c) ----5
History (Ac 201) ----2
Mathematics (Ac. 401) ----5
Chemistry (Agr. 101) ----4
Drawing (Eng. 601) ----5
Mechanic Arts (Eng. 351) ----6
Military Drill (Ac. 600) ----3

Second Term.

English (Ac. 102a, b) ----5
History (Ac. 201) ----2
Mathematics (Ac. 402) ----5
Surveying (Eng. 102) ----5
Chemistry (Agr. 101) ----4
Drawing (Eng. 601) ----5
Mechanic Arts (Eng. 352) ----6
Military Drill (Ac. 600) ----3

Third Term.

English (Ac. 102a, b) ----5
History (Ac. 201) ----2
Mathematics (Ac. 402) ----5
Surveying (Eng. 102) ----5
Chemistry (Agr. 101) ----4
Drawing (Eng. 601) ----5
Mechanic Arts (Eng. 353) ----6
Military Drill (Ac. 600) ----3

CIVIL ENGINEERING.

Surveying (Eng. 105): Forty-eight hours per week for four weeks immediately after commencement in summer camp.

SOPHOMORE CLASS

First Term.

English (Ac. 103a) ----3
History (Ac. 202) ----2
Mathematics (Ac. 403) ----5
R. R. Surveying (Eng. 104) ----5
Descriptive Geometry (Eng. 602) ----4
Physics (Ac. 504) ----3
Mechanic Arts (Eng. 361) ----4
Physical Laboratory (Ac. 502) 2
Military Drill (Ac. 600) ----3

Second Term.

English (Ac. 103c) ----3
History (Ac. 202) ----2
Mathematics (Ac. 403) ----5
R. R. Surveying (Eng. 106) ----4
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) ----4
Physics (Ac. 504) ----3
Mechanic Arts (Eng. 362) ----4
Physical Laboratory (Ac. 502) 2
Military Drill (Ac. 600) ----3

Third Term.

English (Ac. 103c) ----3
Mathematics (Ac. 404) ----5
Higher Surveying (Eng. 103) ----4
Applied Mechanics (Eng 312) 3
Descriptive Geometry (Eng. 602) ----4
Physics (Ac. 504) ----3
Mechanic Arts (Eng. 305) ----5
Physical Laboratory (Ac. 502) 2
Military Drill (Ac. 600) ----3
Surveying (Eng. 110): Forty-eight hours per week for four weeks immediately after commencement in summer camp.

JUNIOR CLASS

First Term.

English (Ac. 107) ----3
Mathematics (Ac. 405) ----5
Engines and Boilers (Eng. 323) 3
Strength of Materials (Eng. 322) ----3
Structural Drafting (Eng. 112) 6
*Machine Shop (Eng. 374) or Mineralogy (Eng. 431) 4
Military Tactics (Ac. 601) ----1
Military Drill (Ac. 600) ----3

Second Term.

English (Ac. 107) ----3
Mathematics (Ac. 405) ----5
Gas Engines (Eng. 324) ----3
Roads and Pavements (Eng. 107) ----5
Road Materials Lab'y. (Eng. 108) ----4
Structural Drafting (Eng. 112) 6
*Machine Shop (Eng. 374) or Mineralogy (Eng. 432) 4
Military Tactics (Ac. 601) ----1
Military Drill (Ac. 600) ----3

Third Term.

English (Ac. 107) ----3
Mathematics (Ac. 405) ----5

Trans. Power (Eng. 325) 3
Roads and Pavements (Eng. 107) 5
Road and Street Improvements (Eng. 109) 4
Graphic Statics (Eng. 111) 6
*Machine Shop (Eng. 374) or Mineralogy (Eng. 433) 4
Military Tactics (Ac. 602) 1
Military Drill (Ac. 600) 3
*And Practical Mechanics (Eng. 321) 1

SENIOR CLASS.

First Term.

English (Ac. 108) 2
Physics (Ac. 505) 2
Geology (Eng. 441 or 436) 2
Theory of Structures (Eng. 113) 5
Railroad Engineering (Eng. 115) or Bacteriology (Vet. 118) 3
Bridge and Structural Design (Eng. 114) 9
Military Science (Ac. 603) 1
Technical Writing (Eng. 610) .3

Second Term.

Economics (Ac. 2) 2
Physics (Ac. 505) 2
Geology (Eng. 441 or 436) 2
Theoretical Hydraulics (Eng. 116) 5
Concrete and Masonry Construction (Eng. 118) 3
Military Science (Ac. 604) 1
Mechanical Engineering Lab. (Eng. 382) 4
Thesis (Eng. 120) 9

Third Term.

Economics (Ac. 2) 2
Astronomy (Ac. 506) 2
Geology (Eng. 441 or 436) 3
Sanitary Engineering (Eng. 119) 5
Masonry and Concrete Construction (Eng. 118) 3
Practical Hydraulics (Eng. 117) 3
Bridge and Structural Design (Eng. 114) 9
Military Science (Ac. 605) 1

ELECTRICAL ENGINEERING.

SOPHOMORE CLASS

First Term.

English (Ac. 103a) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Shop Work (Eng. 361) 4
Physical Laboratory (Ac. 502) 2
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 103c) 3
History (Ac. 202) 2
Applied Mechanics (Eng. 312) 3
Mathematics (Ac. 403) 5
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Shop Work (Eng. 362) 4
Physical Laboratory (Ac. 502) 2
Military Drill (Ac. 600) 3

Third Term.

English (Ac. 103c) 3
Mathematics (Ac. 404) 5
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Shop Work (Eng. 362) 5
Physical Laboratory (Ac. 502) 2
Military Drill (Ac. 600) 3

JUNIOR CLASS.

First Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 5
Electrical Eng. (Eng. 201) 3
Electrical Meas. (Eng. 205) ...1
Strength of Materials (Eng. 322) 3
Graphic Statics (Eng. 605) ...2
Machine Design (Eng. 606) ...3
Practical Mechanics (Eng. 321 1
Electrical Lab'y. (Eng. 206) ..4
Shop Work (Eng. 371) 6
Military Tactics (Ac. 601) 1
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 5
Electrical Eng. (Eng. 202) 3
Electrical Meas. (Eng. 205) ...1
Kinematics (Eng 604) 3
Machine Design (Eng. 606) ...4
Practical Mechanics (Eng. 321)1
Electrical Lab'y. (Eng. 207) ..4
Shop Work (Eng. 371) 6
Military Tactics (Ac. 601) 1
Military Drill (Ac. 600) 3

Third Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 5
Electrical Eng. (Eng. 203) ...3
Electrical Tests (Eng. 205) ...1
Kinematics (Eng. 604) 3
Machine Design (Eng. 606) ...5
Practical Mechanics (Eng. 321)1
Electrical Lab'y. (Eng. 208) ...4
Shop Work (Eng. 371) 6
Military Tactics (Ac. 602) 1
Military Drill (Ac. 600) 3

SENIOR CLASS.

First Term.

English (Ac. 108) 2
Physics (Ac. 505) 2
Electrical Eng. (Eng. 210) 3
Electrical Lab'y. (Eng 213) ...4
Electrical Desig'ng (Eng. 211) 2
Telephone Eng. (Eng. 215) 2
Telephone Lab'y (Eng. 216) ..2
Thermodynamics (Eng. 331) ..5
Mech. Eng. Lab'y (Eng. 381) ..4
Machine Design (Eng. 607) ...1
Machine Design (Eng. 609) ...3
Military Science (Ac. 603) 1

Second Term.

Economics (Ac. 2) 2
Electrical Designing (Eng. 211) 2
Electrical Eng. (Eng. 211) 3
Electrical Lab'y (Eng. 213) ...4
Physics (Ac. 505) 2
Telephone Eng. (Eng. 215) ...2
Telephone Lab'y (Eng. 216) ..2
Street Railways (a) (Eng. 214) 2
Power Plant Eng. (Eng. 332) ..5
Mech. Eng. Lab. (Eng. 382) ..4
Machine Design (Eng. 607) ...1
Machine Design (Eng. 609) ...3
Military Science (Ac. 604) 1

Third Term.

Economics (Ac. 2) 2
Astronomy (Ac. 506) 2
Electrical Eng. (Eng. 212) 5
Electrical Eng. Lab. (Eng. 213) 4
Street Railways (Eng. 214) ...2
Specifications and Contracts (Eng. 219) 2
Power Plant Eng. (Eng. 332) ..5
Mech. Eng. Lab. (Eng. 383) ...4
Machine Design (Eng. 607) ...1
Machine Design (Eng. 609) ...3
Military Science (Ac. 605) ...1

(a) Course Eng. 333 may be substituted.

MECHANICAL ENGINEERING.

SOPHOMORE CLASS.

First Term.

English (Ac. 103a) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Shop Work (Eng. 361) 4
Physical Laboratory (Ac. 502) 2
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 103c) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Shop Work (Eng. 362) 4
Physical Laboratory (Ac. 502) 2
Military Drill (Ac. 600) 3

Third Term.

English (Ac. 103c) 3
Mathematics (Ac. 404) 5
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Shop Work (Eng. 362) 5
Physical Laboratory (Ac. 502) 2
Military Drill (Ac. 600) 3

JUNIOR CLASS.

First Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 5
Strength of Materials (Eng. 322) 3
Graphic Statics (Eng. 605) 2
Machine Design (Eng. 606) ...3
Electrical Eng. (Eng. 201) 3
Electrical Meas. (Eng. 205) ...1
Elec. Eng. Lab'y (Eng. 206) ..4
Practical Mechanics (Eng. 321)1
Shop Work (Eng. 371) 6
Military Tactics (Ac. 601) 1
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 5
Kinematics (Eng. 604) 3
Machine Design (Eng. 606) ..5
Electrical Eng. (Eng. 202) 3
Electrical Meas. (Eng. 205) ...1
Elec. Eng. Lab'y (Eng. 207) ..4

Practical Mechanics (Eng. 321)1
Shop Work (Eng. 371) 6
Military Tactics (Ac. 601) 1
Military Drill (Ac. 600) 3

Third Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 5
Kinematics (Eng. 604) 3
Machine Design (Eng. 606) ...5
Electrical Eng. (Eng. 203) 3
Electrical Tests (Eng. 205) 1
Elec. Eng. Lab'y (Eng. 208) ..4
Practical Mechanics (Eng. 321)1
Shop Work (Eng. 371) 4
Laboratory (Eng. 377) 2
Military Tactics (Ac. 602) 1
Military Drill (Ac. 600) 3

SENIOR CLASS

First Term.

English (Ac. 108) 2
Physics (Ac. 505) 2
Electrical Eng. (a) (Eng. 217) 3
Heating and Ventilating (Eng. 334) 2
Thermodynamics (Eng. 331) ..5
Machine Design (Eng. 607) ...1
Machine Design (Eng. 608) ...6
Elec. Eng. Lab'y (Eng. 218) ..4
Mech. Eng. Lab'y (Eng. 381) ..4
Technical Writing (Eng. 610) 3
Military Science (Ac. 603) 1

Second Term.

Economics (Ac. 2) 2
Physics (Ac. 505) 2
Hydraulic Power (Eng. 333) ..5
Power Plant Eng. (Eng. 332) ..5
Refrigeration (Eng. 336) 2
Machine Design (Eng. 607) ...1
Machine Design (Eng. 608) ...6
Mech. Eng. Lab'y. (Eng. 382) ..4
Thesis (Eng. 384) 2
Military Science (Ac. 604) 1

Third Term.

Economics (Ac. 2) 2
Astronomy (Ac. 506) 2
Power Plant Eng. (Eng. 332) ..5
Metallurgy (Agr. 104b) 3
Contracts and Specifications (Eng. 219) 2
Refrigeration (Eng. 336) 2
Machine Design (Eng. 607) ...1
Machine Design (Eng. 608) ...6
Mech. Eng. Lab'y (Eng. 383) ..4
Thesis (Eng. 384) 4
Military Science (Ac. 605) 1

(a) Course 113 in civil engineering may be substituted.

MINING ENGINEERING

Surveying (Eng. 105)
Forty-eight hours per week for four weeks immediately after commencement in summer camp.

SOPHOMORE CLASS.

First Term.

English (Ac. 103a) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
R. R. Surveying (Eng. 104) ...5
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Mechanic Arts (Eng. 361) 4
Physical Laboratory (Ac. 502) 2
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 103c) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Mechanic Arts (Eng. 362) 4
Physical Laboratory (Ac. 502) 2
Military Drill (Ac. 600) 3

Third Term.

English (Ac. 103c) 3
Mathematics (Ac. 404) 5
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Mechanic Arts (Eng. 362) 5
Physical Laboratory (Ac. 502) 2
Military Drill (Ac. 600) 3

JUNIOR CLASS.

First Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 5
Mine Surveying (Eng. 401) ...5
Geology (Eng. 435) 2
Drawing (Eng. 403) 4
Mineralogy Laboratory (Eng. 431) 4
Chemical Lab'y (Agr. 110a) ...6
Practical Mechanics (Eng. 321)1
Military Tactics (Ac. 601) 1
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 5
Geology (Eng. 435) 2
Drawing (Eng. 403) 4
Mining Engineering (Eng. 402) 5
Mineralogy Laboratory (Eng. 432) 4
Chemical Lab'y (Agr. 110a) .. 6
Practical Mechanics (Eng. 321) 1
Military Tactics (Ac. 601) 1
Military Drill (Ac. 600) 3

Third Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 5
Geology (Eng. 435) 2
Drawing (Eng. 403) 4
Mining Engineering (Eng. 402) 5
Mineralogy Laboratory (Eng. 433) 4
Chemical Lab'y (Agr. 110a) .. 6
Practical Mechanics (Eng. 321) 1
Military Tactics (Ac. 601) 1
Military Drill (Ac. 600) 3

Summer Course, Engineering 404. Taken immediately after commencement.

SENIOR CLASS.

First Term.

English (Ac. 108) 2
Physics (Ac. 505) 2
Economic Geology (Eng. 442) 2
Mining Engineering (Eng. 411) 3
Electrical Eng. (Eng. 204) 2
*Machine Shop (Eng. 374) 4
Metallurgy (Agr. 104) 3
Drawing (Eng. 412) 3
Military Science (Ac. 603) 1
Assaying (Agr. 110d) 8
Metallurgical Lab'y (Eng. 413) 3

Second Term.

Economics (Ac. 2) 2
Physics (Ac. 505) 2
Hydraulics (Eng. 110) 5
Mining Engineering (Eng. 411) 3
Electrical Eng. (Eng. 204) 2
*Machine Shop (Eng. 374) 4
Metallurgy (Agr. 104) 3
Drawing (Eng. 412) 3
Military Science (Ac. 604) 1
Assaying (Agr. 110d) 8
Metallurgical Lab'y (Eng. 413) 3

Third Term.

Economics (Ac. 2) 2
Astronomy (Ac. 506) 2
Economic Geology (Eng. 443) .2
Mining Engineering (Eng. 411) 3
Electrical Eng. (Eng. 204a) ... 2
*Machine Shop (Eng. 374) 4
Metallurgy (Agr. 104b) 3
Drawing (Eng. 412) 3
Military Science (Ac. 605) 1
Assaying (Agr. 110d) 8
Metallurgical Lab'y (Eng. 413) 3

*Electrical laboratory may be substituted.

CHEMICAL ENGINEERING.

SOPHOMORE CLASS.

First Term.

English (Ac. 103a) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Mechanic Arts (Eng. 361) 4
Chem. Laboratory (Agr. 110a) 6
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 103c) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Applied Mech. (Eng. 312) 3
Mechanic Arts (Eng. 362) 4
Chem. Laboratory (Agr. 110a) 6
Military Drill (Ac. 600) 3

Third Term.

English (Ac. 103c) 3
Mathematics (Ac. 404) 5
Desc. Geometry (Eng. 602) ... 4
Physics (Ac. 504) 3
Applied Mechanics (Eng. 312) 3
Mechanic Arts (Eng. 362) 5
Chem. Laboratory (Agr. 110a) 6
Military Drill (Ac. 600) 3

JUNIOR CLASS.

First Term.

English (Ac. 107) or French or German 3
Mathematics (Ac. 405) 5
Organic Chemistry (Agr. 103a) 3
Industrial Chem. (Agr. 102a) .3
Geology (Eng. 435) 2
Military Science (Ac. 601) 1
Chemical Lab'y (Quant. Agr. 110b) 9
Mineralogy Lab'y (Eng. 431) .. 4
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 107) or French or German ---3
Mathematics (Ac. 405) ---5
Organic Chemistry (Agr. 103a) 3
Industrial Chem. (Agr. 102a) 3
Geology (Eng. 435) ---2
Military Science (Ac. 601) ---1
Chemical Lab'y (Quant. Agr. 110b) ---9
Mineralogy Lab'y (Eng. 432) ---4
Military Drill (Ac. 600) ---3

Third Term.

English (Ac. 107) or French or German ---3
Mathematics (Ac. 405) ---5
Organic Chemistry (Agr. 103a) 2
Industrial Chem. (Agr. 102a) 4
Geology (Eng. 435) ---2
Military Science (Ac. 601) ---1
Chemical Lab'y (Quant. Agr. 110b) ---9
Mineralogy Lab'y (Eng. 433) ---4
Military Drill (Ac. 600) ---3

SENIOR CLASS

First Term.

English (Ac. 108) ---2
Physical Chem. (Agr. 108) ---2
German or French ---3
Economic Geology (Eng. 442 ---2
Metallurgy (Agr. 104) ---3
Theoretical Chem. (Agr. 107) ---2
Electrical Eng. (Eng. 204) ---2
Military Science (Ac. 603) ---1
Chemical Lab'y and Assaying (Agr. 110c) ---9
Chemical Lab'y (Org. Agr. 110f) ---4
Metallurgical Lab'y (Eng. 413) 3

Second Term.

Economics (Ac. 2) ---2
Physical Chem. (Agr. 108) ---2
German or French ---3
Metallurgy (Agr. 104) ---3
Electrical Eng. (Eng. 204) ---2
Gas Engines (Eng. 324) ---2
Engineering Chem. (Agr. 106) 2
Military Science (Ac. 604) ---1
Chemical Lab'y and Assaying (Agr. 110c) ---9
Chemical Lab'y (Org. Agr. 110f) ---4
Metallurgical Lab'y (Eng. 413) 3

Third Term.

Economics (Ac. 2) ---2
Physical Chem. (Agr. 108) ---2
German or French ---3
Economic Geology (Eng. 443) 2
Metallurgy (Agr. 104b) ---3
Electrical Eng. (Eng. 204a) ---2
Engineering Chem. (Agr. 106) 2
Military Science (Ac. 605) ---1
Chemical Lab'y and Assaying (Agr. 110c) ---9
Chemical Lab'y (Org. Agr. 110f) ---4
Metallurgical Lab'y (Eng. 413) 3

CHEMISTRY AND METALLURGY

SOPHOMORE CLASS

Students in the Sophomore class in this course may take either the course prescribed for sophomore students in chemical engineering or that prescribed for students pursuing the General Course.

JUNIOR CLASS

First Term.

English (Ac. 107) ---3
Organic Chemistry (Agr. 103a) 3
Industrial Chem. (Agr. 102a) ---3
Geology (Eng. 435) ---2
Advanced Inorganic Chemistry (Agr. 111) ---2
Military Science (Ac. 601) ---1
Chemical Lab'y (Quant. Agr. 110b) ---9
Mineralogy Lab'y (Eng. 431) ---4
Military Drill (Ac. 600) ---3

Second Term.

English (Ac. 107) ---3
Organic Chem. (Agr. 103a) ---3
Industrial Chem. (Agr. 102a) ---3
Geology (Eng. 435) ---2
Advanced Inorganic Chemistry (Agr. 111) ---2
Military Science (Ac. 601) ---1
Chemical Lab'y (Quant. Agr. 110b) ---9
Mineralogy Lab'y (Eng. 432) ---4
Military Drill (Ac. 600) ---3

Third Term.

English (Ac. 107) ---3
Organic Chem. (Agr. 103a) ---2
Industrial Chem. (Agr. 102a) ---4
Geology (Eng. 435) ---2
Advanced Inorganic Chemistry (Agr. 111) ---2
Military Science (Ac. 602) ---1
Chemical Lab'y (Quant. Agr. 110b) ---9
Mineralogy Lab'y (Eng. 433) ---4
Military Drill (Ac. 600) ---3

SENIOR CLASS.

First Term.

English (Ac. 108) 2
Physical Chem. (Agr. 108) 2
German or French 3
Economic Geology (Eng. 442) 2
Metallurgy (Agr. 104) 3
Theoretical Chem. (Agr. 107) 2
Bacteriology (Vet. 118) 6
Military Science (Ac. 603) 1
Chemical Lab'y and Assaying (Agr. 110c) 9
Metallurgical Lab'y (Eng. 413) 3

Second Term.

Economics (Ac. 2) 2
Physical Chemistry (Agr. 108) 2
German or French 3
Metallurgy (Agr. 104) 3
Engineering Chem. (Agr. 106) 2
Bacteriology (Vet. 118) 6
Military Science (Ac. 604) 1
Chemical Lab'y and Assaying (Agr. 110c) 9
Metallurgical Lab'y (Eng. 413) 3

Third Term.

Economics (Ac. 2) 2
Physical Chemistry (Agr. 108) 2
German or French 3
Economic Geology (Eng. 443) 2
Metallurgy (Agr. 104b) 3
Engineering Chem. (Agr. 106) 2
Military Science (Ac. 605) 1
Chemical Lab'y and Assaying (Agr. 110c) 9
Chemical Lab'y (Org. Agr. 110f) 6
Metallurgical Lab'y (Eng. 412) 3

TWO-YEAR COURSE IN APPLIED ELECTRICITY

FIRST YEAR.

First Term.

English (special course) 5
Mathematics (special course) .. 5
Electrical Eng. (Eng. 204) 3
Engines and Boilers (Eng. 323) 3
Drawing (Eng. 601) 5
Electrical Lab'y (Eng. 206) ... 4
Shop Work (Eng. 361) 4
Power Plant (Eng. 220) 4

Second Term.

English (special course) 5
Mathematics (special course) .. 5
Electrical Eng. (Eng. 204) 3
Gas Engines (Eng. 324) 3
Drawing (Eng. 601) 5
Shop Work (Eng. 362) 4
Power Plant (Eng. 220) 4

Third Term.

English (special course) 5
Mathematics (special course) .. 5
Electrical Eng. (Eng. 205) 3
Trans. Power (Eng. 325) 3
Drawing (Eng. 601) 5
Electrical Lab'y (Eng. 208) ... 4
Shop Work (Eng. 362) 4
Power Plant (Eng. 220) 4

SECOND YEAR

First Term.

English (special course) 3
Mathematics (Ac. 401) 5
Electrical Eng. (Eng. 217) 4
Kinematics (Eng. 604) 3
P actical Mech. (Eng. 321) .. 1
Drawing (Eng. 606) 4
Electrical Lab'y (Eng. 218) ... 4
Shop Work (Eng. 362) 4
Power House (Eng. 220) 4

Second Term.

English (special course) 3
Electrical Eng. (Eng. 217a) ... 4
Applied Mechanics (Eng. 312) 3
Practical Mechanics (Eng. 321) 1
Drawing (Eng. 606) 4
Electrical Lab'y (Eng. 218a) .. 4
Mech. Lab'y (Eng. 378) 3
Shop Work (Eng. 374) 4
Power House (Eng. 220) 4

Third Term.

English (special course) 3
Street Railways (Eng. 214) 2
Electrical Eng. (Eng. 217b) ... 4
Applied Mechanics (Eng. 312) 3
Practical Mechanics (Eng. 321) 1
Drawing (Eng. 606) 4
Electrical Lab'y (Eng. 218b) .. 4
Shop Work (Eng. 374) 4
Power House (Eng. 220) 4

SPECIAL COURSE FOR ROAD FOREMEN AND INSPECTORS

First Term.

Mathematics (special course) .. 5
Drawing (Eng. 601) 5
Surveying (Eng. 102) 5
Roads and Pavements (special course) 3
Mechanic Arts (Eng. 351 or 361) 6

Second Term.

Mathematics (special course) ..5
Drawing (Eng. 601) 5
Surveying (Eng. 102) 5
Roads and Pavements (special course) 3
Road Materials Lab'y (Eng. 108) 3
Mechanic Arts (Eng. 352 or 362) 6

Third Term.

Mathematics (special course) ..5
Drawing (Eng. 601) 5
Surveying (Eng. 102) 5
Roads and Pavements (special course) 3
Road and Street Improvements (Eng. 109) 3

SPECIAL ONE-YEAR COURSE IN WIRELESS TELEGRAPHY.

First Term.

English (special course) 5
Mathematics (special course) ..5
Electrical Eng. (Eng. 204) 3
Engines and Boilers (Eng. 323) 3
Drawing (Eng. 601) 5
Electrical Lab'y (Eng. 206) ...4
Shop Work (Eng. 361) 4
Wireless Telegraphy (Eng. 221) 4

Second Term.

English (special course) 5
Mathematics (special course) ..5
Electrical Eng. (Eng. 204) 3
Gas Engines (Eng. 324) 3
Drawing (Eng. 601) 5
Electrical Lab'y (Eng. 207) ...4
Shop Work (Eng. 362) 4
Wireless Telegraphy (Eng. 221) 4

Third Term.

English (special course) 5
Mathematics (special course) ..5
Electrical Eng. (Eng. 205) 3
Trans. Power (Eng. 325) 3
Drawing (Eng. 601) 5
Electrical Lab'y (Eng. 208) ...4
Shop Work (Eng. 362) 4
Wireless Telegraphy (Eng. 221) 4

TWO-YEAR MINING COURSE.

First Year

First Term.

English (special course) 5
Mathematics (Ac. 401) 5
Mining (Eng. 401) 5
Mineralogy (Eng. 431) 4
Drawing (Eng. 601) 5
Military Drill (Ac. 600) 3

Second Term.

English (special course) 5
Mathematics (Ac. 402) 5
Mining (Eng. 402) 5
Surveying (Eng. 102) 5
Mineralogy (Eng. 432) 4
Drawing (Eng. 601) 5
Military Drill (Ac. 600) 3

Third Term.

English (special course) 5
Mathematics (Ac. 402) 5
Mining (Eng. 402) 5
Surveying (Eng. 103) 5
Mineralogy (Eng. 433) 4
Drawing (Eng. 601) 5
Military Drill (Ac. 600) 3

Second Year.

First Term.

English (special course) 3
Mining (Eng. 411) 3
Elec. Eng. (Eng. 204) 3
Surveying (Eng. 104) 5
Eng. Geology (Eng. 436) 2
Practical Mech. (Eng. 321) ...1
Shop Work (Eng. 361) 4
Electrical Lab'y 4
Drawing 4
Military Drill (Ac. 600) 3

Second Term.

English (special course) 3
Mining (Eng. 411) 3
Elec. Eng. (Eng. 204) 3
Applied Mech. (Eng. 312) 3
Eng. Geology (Eng. 436) 2
Practical Mech. (Eng. 321) ...1
Shop Work (Eng. 362) 4
Electrical Lab'y 4
Drawing 4
Military Drill (Ac. 600) 3

Third Term.

English (special course) -----3
Mining (Eng. 411) ----------3
Elec. Eng. (Eng. 217b) -------4
Applied Mech. (Eng. 312) ----3
Eng. Geology (Eng. 436) -----2
Practical Mech. (Eng. 321) ----1
Shop Work (Eng. 362) -------4
Electrical Lab'y ------------4
Drawing ---------------------4
Military Drill (Ac. 600) ------3

ARCHITECTURE.

Freshman Class.

First Term.

English (Ac. 102a) ----------3
History (Ac. 201) -----------2
Mathematics (Ac. 401) -------5
Chemistry (Agr. 101) --------4
Freehand Drawing (Arch. 11) 4
Descriptive Geometry (Eng. 602) ---------------------4
Shades and Shadows (Arch. 15) ---------------------3
Elements of Architecture (Arch. 19) -------------6
Military Drill (Ac. 600) ------3

Second Term.

English (Ac. 102b) ----------3
History (Ac. 201) -----------2
Mathematics (Ac. 402) -------5
Chemistry (Agr. 101) --------4
Freehand Drawing (Arch. 11) 4
Descriptive Geometry (Eng. 602) ---------------------4
Surveying (Eng. 102) --------5
Elements of Architecture (Arch. 19) -------------6
Military Drill (Ac. 600) ------3

Third Term.

English (Ac. 102b) ----------3
History (Ac. 201) -----------2
Mathematics (Ac. 402) -------5
Chemistry (Agr. 101) --------4
Freehand Drawing (Arch. 11) 4
Perspective (Arch. 17) -------3
Descriptive Geometry (Eng. 602) ---------------------4
Elements of Architecture (Arch. 19) -------------6
Military Drill (Ac. 600) ------3

Sophomore Class

First Term.

English (Ac. 103a) ----------3
History (Ac. 202) -----------2
Mathematics (Ac. 403) -------5
Physics (Ac. 504) -----------3
History or Architecture (Arch. 21) -------------3
Charcoal Drawing (Arch. 25) -6
Architectural Design (Arch. 29) ---------------------12
Military Drill (Ac. 600) ------3

Second Term.

English (Ac. 103b) ----------3
History (Ac. 202) -----------2
Mathematics (Ac. 403) -------5
Physics (Ac. 504) -----------3
History of Architecture (Arch. 21) -------------3
Charcoal Drawing (Arch 25) -6
Architectural Design (Arch. 29) ---------------------12
Military Drill (Ac. 600) ------3

Third Term.

English (Ac. 103c) ----------3
Mathematics (Ac. 404) -------5
Physics (Ac. 504) -----------3
History of Architecture (Arch. 21) -------------3
Charcoal Drawing (Arch 25) -6
Pen and Ink Rendering (Arch 27) ---------------4
Architectural Design (Arch. 29) ---------------------12
Military Drill (Ac. 600) ------3

Junior Class

First Term.

History of Architecture Arch. 31) ---------------3
Mathematics (Ac. 405) --------5
French (Ac. 301a) -----------4
Building Construction, Masonry (Arch. 33) -----------3
Strength of Materials (Eng. 322) ---------------------3
Water Color Painting (Arch. 37) ---------------------4
Architectural Design (Arch. 39) ---------------------12
Military Science (Ac. 601) ----1
Military Drill (Ac. 600) ------3

Second Term.

History of Architecture (Arch. 31) ---------------3
Mathematics (Ac. 405) --------5
French (Ac. 301b) -----------3

Building Construction, Carpentry (Arch. 34) ----------3
Applied Mechanics (Eng. 312) 3
Water Color Painting (Arch. 37) ----------4
Architectural Design (Arch. 39) ----------12
Military Science (Ac. 601) ----1
Military Drill (Ac. 600) ------3

Third Term.

Historic Ornament (Arch. 32) -3
Mathematics (Ac. 405) -------5
French (Ac. 301c) ----------4
Plumbing and Drainage (Arch. 35) ----------3
Applied Mechanics (Eng. 312) -3
Graphic Statics (Eng. 111) ----5
Working Drawings (Arch. 38) 12
Military Science (Ac. 602) ---1
Military Drill (Ac. 600) ------3

SENIOR CLASS.

First Term.

History of Painting (Arch. 42) 1
French (Ac. 302a) ----------4
Heating and Ventilation (Eng. 334) ----------2
Steel Frame Construction (Eng. 113a) ----------2
Life Class (Arch. 46) --------6
Architectural Design (Arch. 49) ----------24
Military Science (Ac. 603-605) 1

Second Term.

History of Sculpture (Arch. 43) ----------1
French (Ac. 302b) ----------3
Economics (Ac. 2) ----------2
Reinforced Concrete (Eng. 118) ----------3
Life Class (Arch. 46) --------6
Architectural Design (Arch. 49) ----------24
Military Science (Ac. 603-605) 1

Third Term.

Professional Practice (Arch. 44) ----------1
French (Ac. 302c) ----------4
Economics (Ac. 2) ----------2
Wiring and Illumination (Eng. 209) ----------2
Clay Modeling (Arch. 47) -----6
Architectural Design (Arch. 49) ----------24
Military Science (Ac. 603-605) 1

ARCH. ENGINEERING.

JUNIOR CLASS.

First Term.

History of Architecture (Arch. 31) ----------3
Mathematics (Ac. 405) -------5
Building Construction, Masonry (Arch. 33) ----------3
Geology (Eng. 436) ----------2
Electricity and Magnetism (Eng. 204) ----------2
Engines and Boilers (Eng. 323)3
Strength of Materials (Eng. 322) ----------3
Structural Drafting (Eng. 112) 6
Military Science (Ac. 601) ---1
Military Drill (Ac. 600) ------3

Second Term.

History of Architecture (Arch. 31) ----------3
Mathematics (Ac. 405) -------5
Building Construction, Carpentry (Arch. 34) ----------3
Geology (Eng. 436) ----------2
Electricity and Magnetism (Eng. 204) ----------2
Gas Engines (Eng. 324) ------3
Applied Mechanics (Eng. 312) -3
Structural Drafting (Eng. 112) 6
Military Science (Ac. 601) ----1
Military Drill (Ac. 600) ------3

Third Term.

Plumbing and Drainage (Arch. 35) ----------3
Mathematics (Ac. 405) -------5
Wiring and Illuminating (Eng. 209) ----------2
Geology (Eng. 436) ----------2
Dynamo Electric Machinery (Eng. 204a) ----------2
Transmission of Power (Eng. 325) ----------3
Applied Mechanics (Eng. 312) 3
Graphic Statics (Eng. 111) ----5
Military Science (Ac. 601) ----1
Military Drill (Ac. 600) ------3

SENIOR CLASS

First Term.

Heating and Ventilation (Eng. 334) ----------2
Theory of Structures (Eng. 113) ----------5
Structural Design (Eng. 114) -9
Technical Writing (Eng. 610) -3

Water Color Painting (Arch. 37), or Elective ----4
Architectural Design (Arch. 48) ----16
Military Science (Ac. 603-605) 1

Second Term.

Reinforced Concrete (Eng. 118) ----3
Economics (Ac. 2) ----2
Testing Laboratory (Eng. 382) 4
Hydraulics (Eng. 116) ----5
Roads and Pavements (Eng. 107) ----5
Architectural Design (Arch. 48) ----16
Military Science (Ac. 603-605) 1

Third Term.

Professional Practice (Arch. 44) 1
Economics (Ac. 2) ----2
Foundations (Eng. 118) ----3
Sanitary Engineering (Eng. 119) ----5
Structural Design (Eng. 114) --9
Architectural Design (Arch. 48) ----16
Military Science (Ac. 603-605) 1

TWO-YEAR SPECIAL COURSE IN ARCHITECTURE.

First Year.

First Term.

History of Architecture (Arch. 21) ----3
Mathematics (Ac. 401) ----5
Building Construction, Masonry (Arch. 33) ----3
Freehand Drawing (Arch 11) -4
Descriptive Geometry (Eng. 602) ----4
Shades and Shadows (Arch. 13) ----3
Architectural Design (Arch. 29) ----12
Military Drill (Ac. 600) ----3

Second Term.

History of Architecture (Arch. 21) ----3
Building Construction, Carpentry (Arch. 34) ----3
Freehand Drawing (Arch. 11) 4
Charcoal Drawing (Arch. 25) -6
Descriptive Geometry (Eng. 602) ----4
Surveying (Eng. 102) ----5
Architectural Design (Arch. 29) ----12
Military Drill (Ac. 600) ----3

Third Term.

History of Architecture (Arch. 21) ----3
Plumbing and Drainage (Arch. 35) ----3
Charcoal Drawing (Arch. 25) 6
Pen and Ink Rendering (Arch. 27) ----4
Descriptive Geometry (Eng. 602) ----4
Perspective (Arch. 15) ----3
Architectural Design (Arch. 29) ----12
Military Drill (Ac. 600) ----3

Second Year.

First Term.

History of Architecture (Arch. 31) ----3
History of Painting (Arch. 42) -1
Heating and Ventilation (Eng. 334) ----2
Water Color Painting (Arch. 37) ----4
Life Class (Arch. 46) ----6
Architectural Design (Arch. 49) ----24
Military Drill (Ac. 600) ----3

Second Term.

History of Architecture (Arch. 31) ----3
History of Sculpture (Arch. 43) ----1
Economics (Ac. 2) ----2
Water Color Painting (Arch. 37) ----4
Life Class (Arch. 46) ----6
Architectural Design (Arch. 49) ----24
Military Drill (Ac. 600) ----3

Third Term.

Historic Ornament (Arch. 32) 3
Professional Practice (Arch. 44) 1
Economics (Ac. 2) ----2
Wiring and Illumination (Eng. 209) ----2
Clay Modeling (Arch. 47) ----6
Architectural Design (Arch. 49) ----24
Military Drill (Ac. 600) ----3

COLLEGE OF AGRICULTURAL SCIENCES

AGRICULTURE

Freshman Class.

First Term.

English (Ac. 102a, c) 5
History (Ac. 201) 2
Mathematics (Ac. 401) 5
Chemistry (Agr. 101) 4
Drawing (Eng. 601) 5
Mechanic Arts (Eng. 351) 6
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 102a, b) 5
History (Ac. 201) 2
Mathematics (Ac. 402) 5
Surveying (Eng. 102) 5
Chemistry (Ag. 101) 4
Drawing (Eng. 601) 5
Mechanic Arts (Eng. 352) 6
Military Drill (Ac. 600) 3

Third Term.

English (Ac. 102a, b) 5
History (Ac. 201) 2
Mathematics (Ac. 402) 5
Surveying (Eng. 102) 5
Chemistry (Agr. 101) 4
Drawing (Eng. 601) 5
Mechanic Arts (Eng. 353) 6
Military Drill (Ac. 600) 3

Sophomore Class.

First Term.

English (Ac. 103a) 3
History (Ac. 202) 2
Corn (Agr. 202) 4
Zoology (Agr. 701) 6
Botany (Agr. 301) 6
Physics (Ac. 504) 3
Organic Chemistry (Agr. 103b) 3
Stock Judging (Agr. 802) 2
Chemical Lab'y (Agr. 110a) ...6
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 103c) 3
History (Ac. 202) 2
Zoology (Agr. 701) 5
Botany (Agr. 301) 6
Physics (Ac. 504) 3
Stock Judging (Agr. 803) 4
Farm Accounts (Agr. 203) 2
Organic Chemistry (Agr. 103b) 3
Chemical Lab'y (Agr. 110a) ...6
Military Drill (Ac. 600) 3

Third Term.

English (Ac. 103c) 3
Botany (Agr. 301) 6
Physics (Ac. 504) 3
Horticulture (Agr. 601) 6
Agriculture (Agr. 203) 4
Agricultural Chem. (Agr. 105) 4
Chemical Lab'y (Agr. 110a) ...6
Military Drill (Ac. 600) 3

Junior Class.

First Term.

English (a) (Ac. 107) 3
Dairying (Agr. 804) 4
Agr. Bacteriology (Agr. 303) ..6
*Veterinary Science (a) (Vet. 102) 5
Drainage (Agr. 520) 4
Horticulture (Agr. 602) 2
Chemical Lab'y (a) (Agr. 110b)6
Military Tactics (Ac. 601) 1
Military Drill (Ac. 600) 3

Second Term.

English (a) (Ac. 107) 3
Botany (Agr. 304) 6
*Veterinary Science (a) (Vet. 102) 5
An. Husbandry (Agr. 805) 4
Horticulture (Agr. 603, 604) ..6
Geology (Eng. 434) 4
Chemical Lab'y (a) (Agr. 110b)6
Military Tactics (Ac. 601) 1
Military Drill (Ac. 600) 3

Third Term.

English (a) (Ac. 107) 3
Botany (Agr. 304) 6
*Veterinary Science (a) (Vet. 102) 5
Animal Husbandry (Agr. 806) 4
Agriculture (Agr. 205) 4
Horticulture (Agr. 603) 4
Chemical Lab'y (a) (Agr. 110b)6
Military Tactics (Ac. 602) 1
Military Drill (Ac. 600) 3

(a) Education or a modern language may be substituted.

*Veterinary Science is required of students who specialize in animal husbandry.

Senior Class.

The studies of the course in Agriculture are divided into five groups, as follows:

Group "A," agronomy: Gives special prominence to crops, soils, and farm machinery.

Group "B," horticulture: Gives special reference to fruit growing, trucking, greenhouse management, and landscape gardening.

Group "C," animal husbandry: Gives special prominence to

all work pertaining to live stock.

Group "D," agricultural chemistry: Especially designed to prepare students for experiment station and fertilizer control work.

Group "E," botany: Designed to train students for station work or to pursue advanced work in botany.

The elective work in each group must be approved at the beginning of the senior year by the president and the professor in charge, and with the required work must aggregate at least twenty-one hours, counting two hours laboratory equal to one hour. At least nineteen hours of this work must be taken in each term; and the maximum for any term is a total of twenty-five such hours in all classes, except by special permission of the faculty.

The giving of an elective course will be optional with the professor in charge unless it be elected by at least four students.

ELECTIVES FOR SENIOR GROUPS

First Term.

Cotton (Agr. 206) ----4
Animal Husbandry (Agr. 807, 808) ----6
Horticulture (Agr. 605) ----5
Canning (Agr. 606) ----3
Botany (Agr. 305) ----6
Vet. Science (Vet. 102) ----5
Industrial Chem. (Agr. 102a) --3
French (Ac. 302a) ----4
Physics (Ac. 505) ----2
Chemical Lab'y (Agr. 110b) --6
Mathematics (Ac. 403 & 404, or 405) ----5
Education ----3

Second Term.

Agriculture (Agr. 207) ----4
Animal Husbandry (Agr. 808, 809, 811, 813) ----6
Horticulture (Agr. 605, 606) --5
Botany (Agr. 305) ----6
Botany (Agr. 306) ----6
Vet. Science (Vet. 102) ----5
Industrial Chem. (Agr. 102a) --3
French (Ac. 302b) ----3
Chemical Lab'y (Agr. 110b) --6
Mathematics (Ac. 403 & 404, or 405) ----5
Forestry (Agr. 608) ----5
Education ----3
Farm Engines (Agr. 521) ----2

Third Term.

Agriculture (Agr. 208) ----4
Animal Husbandry (Agr. 810, 818) ----4
Horticulture (Agr. 605, 609) --7
Botany (Agr. 307) ----6
Vet. Science (Vet. 102) ----5
Industrial Chem. (Agr. 102a) --3
French (Ac. 302c) ----4
Chemical Lab'y (Agr. 110) ----6
Mathematics (Ac. 403 & 404 or 405) ----5
Education ----3

REQUIRED SUBJECTS SENIOR GROUPS

GROUP "A" AGRONOMY.

First Term.

Agr. and Agr. Lab. (Agr. 206) 4
Entomology (Agr. 702) ----5
Military Science (Ac. 603) ----1
Soils and Soils Lab'y (Agr. 211) 5
German (a) (Ac. 305a) ----4
Thesis (Agr. 209) ----

Second Term.

Agriculture (Agr. 207) ----2
Farm Machinery (Agr. 522) ---2
Forestry (Agr. 608) ----5
Military Science (Ac. 604) ----1
Soils and Soils Lab'y (Agr. 211) 5
German (a) (Ac. 305b) ----3
Thesis (Agr. 209) ----

Third Term.

Agr. and Agr. Lab. (Agr. 208) 4
Entomology (Agr. 703) ----5
Military Science (Ac. 605) ----1
Soils and Soils Lab'y (Agr. 211) 5
German (a) (Ac. 305c) ----4
Thesis (Agr. 209) ----

(a) French may be substituted.

Electives: The additional work is to be selected from the elective subjects listed.

GROUP "B," HORTICULTURE.

First Term.

Horticulture (Agr. 605, 606) --8
Entomology (Agr. 702) ----5
Military Science (Ac. 603) ----1
Botany (Agr. 305) ----6
Soils (Agr. 211) ----5
German (a) (Ac. 306a) ----4
Thesis (Agr. 611) ----

Second Term.

Horticulture (Agr. 605, 607) ..8
Forestry (Agr. 608) 4
Military Science (Ac. 604) 1
Botany (Agr. 305) 6
Soils (Agr. 211) 5
German (a) (Ac. 306b) 3
Thesis (Agr. 610) .....

Third Term.

Horticulture (Agr. 605, 609) ..7
Entomology (Agr. 703) 5
Military Science (Ac. 605) 1
Soils (Agr. 211) 5
German (a) (Ac. 306c) 4
Thesis (Agr. 610) .....

(a) French or English and Political Economy and one additional subject may be substituted.

Electives: The additional work is to be selected from the elective subjects listed above.

GROUP "C."

ANIMAL HUSBANDRY

Animal Hus. (Agr. 807, 808, 812) 7
Animal Hus. Lab'y (Agr. 812) 2
Entomology (Agr. 702) 5
Military Science (Ac. 603) 1
Soils and Soils Lab'y (Agr. 211)5
German (a) (Ac. 306a) 4
Thesis .....

Second Term.

Animal Hus. (Agr. 808, 812, 813) 6
Animal Hus. Lab'y (Agr. 809, 811, 812) 6
Military Science (Ac. 604) 1
Soils and Soils Lab'y (Agr. 211)5
German (a) (Ac. 306b) 3
Thesis .....

Third Term.

Animal Hus. (Agr. 808, 810, 812) 6
Animal Hus. Lab'y (Agr. 812) 2
Entomology (Agr. 703) 5
Military Science (Ac. 605) 1
Soils and Soils Lab'y (Agr. 211)5
German (a) (Ac. 306c) 4
Thesis .....

(a) French may be substituted.

Electives: The additional work is to be selected from the elective subjects listed above or from the course in Veterinary Medicine.

GROUP "D," AGRICULTURAL CHEMISTRY.

First Term.

Chemical Lab'y (Agr. 110) 6
Entomology (Agr. 702) 5
Military Science (Ac. 603) 1
German (a) (Ac. 306a) 3
Thesis .....

Second Term.

Chemical Lab'y (Agr. 110) 6
Forestry (Agr. 608) 5
Military Science (Ac. 604) 1
German (a) (Ac. 306b) 3
Thesis .....

Third Term.

Chemical Lab'y (Agr. 110) 6
Entomology (Agr. 703) 5
Military Science (Ac. 605) 1
German (a) (Ac. 306c) 4
Thesis .....

(a) French may be substituted.

Electives: The additional work is to be selected from the elective subjects listed above.

GROUP "E," BOTANY

First Term.

German (a) (Ac. 306a) 4
Botany (Agr. 305) 6
Soils and Soils Lab'y (Agr. 211) 5
Entomology (Agr. 702) 5
Military Science (Ac. 603) 1
Thesis .....

Second Term.

German (a) (Ac. 306b) 3
Botany (Agr. 305 or 306) 6
Soils and Soils Lab'y (Agr. 211) 5
Forestry and Forestry Lab'y (Agr. 609) 5
Military Science (Ac. 604) 1
Thesis .....

Third Term.

German (a) (Ac. 306c) 4
Botany (Agr. 307) 6
Soils and Soils Lab'y (Agr. 211)5
Entomology (Agr. 703) 5
Military Science (Ac. 605) 1
Thesis .....

(a) French may be substituted.

Electives: The equivalent of at least six hours from the subjects listed, subject to the direction of the professor.

TWO-YEAR COURSE IN AGRICULTURE

Continuation in any subject is conditioned upon satisfactory progress in that subject.

First Year.

First Term.

English 5
Chemistry (Agr. 101) 4
Veterinary Science (Vet. 102) .5
Mechanic Arts (Eng. 351) 6
Corn (Agr. 202) 4
Dairying (Agr. 804) 4
Landscape Gardening (Agr. 602) 2
Judging Beef Cattle (Agr. 802) 2
Military Drill (Ac. 600) 3

Second Term.

English 5
Chemistry (Agr. 101) 4
Veterinary Science (Vet. 102) .5
Mechanic Arts (Eng. 352) 6
Vegetable Gardening (Agr. 603) 4
Orchard Technique (Agr. 604) 2
Judging Dairy Cattle (Agr. 803) 4
Meats (Agr. 809) 2
Farm Accounts (Agr. 203) ... 2
Military Drill (Ac. 600) 3

Third Term.

English 5
Chemistry (Agr. 101) 4
Veterinary Science (Vet. 102) .5
Mechanic Arts (Eng. 353) 6
Principles of Plant Culture (Agr. 601) 2
Vegetable Gardening (Agr. 603) 4
Small Grains (Agr. 204) 4
Military Drill (Ac. 600) 3

Second Year.

First Term.

Principles of Breeding (Agr. 807) 2
Canning (Agr. 606) 3
Pomology (Agr. 605) 5
Zoology (Agr. 701) 6
Cotton (Agr. 206) 4
Entomology (Agr. 702) 5
Soils (Agr. 211) 5
Military Drill (Ac. 600) 3

Second Term.

Orchard Technique (Agr. 604) 2
Forestry (Agr. 608) 5
Miscellaneous Crops (Agr. 207a) 2
Swine Judging (Agr. 805) 4
Zoology (Agr. 701) 6
Soils (Agr. 211) 5
Pomology (Agr. 605) 5
Military Drill (Ac. 600) 3

Third Term.

Pomology (Agr. 605) 5
Sheep Judging (Agr. 806) 5
Poultry (Agr. 810) 2
Soils (Agr. 211) 5
Entomology (Agr. 703) 5
Farm Management (Agr. 208) .4
Forage Crops (Agr. 205) 4
Terracing and Drainage (Agr. 214) 2
Military Drill (Ac. 600) 3

DEPARTMENT OF PHARMACY

TWO-YEAR COURSE IN PHARMACY.

First Year.

First Term.

English (a) (special course) ..3
Chemistry (Agr. 101) 4
Physiology (Vet. 101) 2
Pharmacy (Agr. 401a) 3
Botany (Agr. 301) 6
Pharmaceutical Lab'y (Agr. 401b) 8
Chemical Lab'y (Agr. 110a) ...6
Military Drill (Ac. 600) 3

Second Term.

English (a) (special course) ..3
Chemistry (Agr. 101) 4
Physiology (Vet. 101) 2
*Pharmacy (Agr. 401a) 3
Pharmacognosy (Agr. 402) ...4
Botany (Agr. 301) 6
Chemical Lab'y (Agr. 110a) ..6
Pharmaceutical Laboratory (Agr. 401b) 8
Military Drill (Ac. 600) 3

Third Term.

English (a) (special course) ..3
Botany (Agr. 301) 6
Chemistry (Agr. 101) 4
Phar. Chem. (Agr. 406) 3
Physiology (Vet. 101) 2
Pharmacognosy (Agr. 402) ...4
Chemical Lab'y (Agr. 110a) ..6
Military Drill (Ac. 600) 3

(a) Latin may be substituted.
*Substitute Phar. Chem. (Agr. 406) latter half term.

SECOND YEAR.

First Term.

Pharmacy (Agr. 403a) 3
Adv. Pharmacog. (Agr. 404) ..4
Pharmaceutical Laboratory (Agr. 403b) 12
Organic Chem. (Agr. 103a) 2
Chemical Lab'y (Agr. 110c) ..6
Bacteriology (Vet. 108) 6
Military Drill (Ac. 600) 3

Second Term.

Pharmacy (Agr. 403a) 3
*Adv. Pharmacog. (Agr. 404) ..4
Alkaloidal Assay (Agr. 403c) ..9
Organic Chem. (Agr. 103a) ...2
Chemical Lab'y (Agr. 110c) ...6
Bacteriology (Vet. 108) 6
United States Phar. (Agr. 407) 3
xPharmacology (Vet. 120) 3
Military Drill (Ac. 600) 3

Third Term.

Pharmacy (Agr. 403a) 3
Prescriptions (Agr. 405) 3
United States Phar. (Agr. 407) 3
Pharmacology (Vet. 120) 3
Prescription Laboratory (Agr. 403d) 4
Pharmaceutical Testing and Drug Analysis (403e) 6
Organic Chem. (Agr. 103a) 2
Toxicology (Agr. 110e) 7
Military Drill (Ac. 600) 3

xSubstitute for Bacteriology in latter half second term.

*Substitute Prescriptions (Agr. 405) latter half second term.

THREE-YEAR COURSE IN PHARMACY

FIRST YEAR.

First Term.

English (Ac. 102a) 3
Latin (Ac. 209) 3
Chemistry (Agr. 101) 4
Pharmacy Lab'y (Agr. 401b) ..8
Pharmacy (Agr. 401a) 3
Physiology (Vet. 101) 2
Chemical Lab'y (Agr. 110a) ..6
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 102b) 3
Latin (Ac. 209) 4
Chemistry (Agr. 101) 4
xPharmacy (Agr. 401a) 3
Physiology (Vet. 101) 2
Pharmacy Lab'y (Agr. 401b) ..8
Chemical Lab'y (Agr. 110a) ..6
Military Drill (Ac. 600) 3

Third Term.

English (Ac. 102b) 3
Latin (Ac. 209) 4
Chemistry (Agr. 101) 4
Physiology (Vet. 101) 2
Pharmaceutical Chem. (Agr. 406) 3
Chemical Lab'y (Agr. 110a) ...6
Military Drill (Ac. 600) 3

xSubstitute Pharmaceutical Chemistry (Agr. 406) latter half term.

SECOND YEAR.

First Term.

Pharmacy (Agr. 403a) 3
Physics (Ac. 504) 3
Botany (Agr. 301) 6
Pharmacy Lab'y (Agr. 403b) ..12
Chemical Lab'y (Agr. 110b) ..6
Military Drill (Ac. 600) 3

Second Term.

Pharmacy (Agr. 403a) 3
Physics (Ac. 504) 3
Pharmacognosy (Agr. 402) ...4
Botany (Agr. 301) 6
Alkaloidal Assay (Agr. 403c) ..9
Chemical Lab'y (Agr. 110b) ...6
Military Drill (Ac. 600) 3

Third Term.

Pharmacy (Agr. 403a) 3
Physics (Ac. 504) 3
Pharmacognosy (Agr. 402) 4
Botany (Agr. 301) 6
Prescription Lab'y (Agr. 403d) 4
Pharmaceutical Testing and Drug Analysis 6
Toxicology (Agr. 110c) 7
Military Drill (Ac. 600) 3

THIRD YEAR.

First Term.

Advanced Pharmacognosy (Agr. 404) 4
Organic Chemistry (Agr. 103a) 2
German (Ac. 305a) 4
Bacteriology (Vet. 108) 6
Zoology (Agr. 701) 5
Chemical Lab'y (Agr. 110c) ...6
Food and Drug Analysis (Agr. 408j) 12
Military Tactics (Ac. 601) 1

Second Term.

xxAdvanced Pharmacognosy (Agr. 404) 4
Organic Chemistry (Agr. 103a) 2
United States Pharmacopœia (Agr. 407) 3

xBacteriology (Vet. 108) ------6
German (Ac. 305b) ----------4
Zoology (Agr. 701) ----------5
Chemical Lab'y (Agr. 110c) --6
Organic Chemical Lab'y (Agr. 408g) ----------8
Military Tactics (Ac. 601) ----1

Third Term.

Prescriptions (Agr. 405) -----3
German (Ac. 305c) ----------4
Organic Chemistry (Agr. 103a) 2
United States Pharmacopoeia (Agr. 407) ----------3
Pharmacology (Vet. 120) -----3
Chemical Lab'y (Agr. 110c) ---6
Organic Chemical Lab'y (Agr. 408g) ----------12
Military Tactics (Ac. 602) ----1

xxSubstitute Prescriptions (Agr. 405) latter half second term.

xSubstitute Pharmacology (Vet. 120) latter half second term.

PHARMACY

Freshman Class.

First Term.

English (102a) ----------3
History (Ac. 201) ----------2
Latin (Ac. 209) ----------3
Mathematics (Ac. 401) --------5
Chemistry (Agr. 101) ---------4
Drawing (Eng. 601) ----------5
Mechanic Arts (Eng. 351) ----6
Military Drill (Ac. 600) ------3

Second Term.

English (Ac. 102b) ----------3
History (Ac. 201) ----------2
Latin (Ac. 209) ----------4
Mathematics (Ac. 402) --------5
Chemistry (Agr. 101) ---------4
Drawing (Eng. 601) ----------5
Mechanic Arts (Eng. 352) ----6
Military Drill (Ac. 600) ------3

Third Term.

English (102b) ----------3
History (Ac. 201) ----------2
Latin (Ac. 205) ----------3
Mathematics (Ac. 402) --------5
Chemistry (Agr. 101) ---------4
Drawing (Eng. 601) ----------5
Mechanic Arts (Eng. 353) -----6
Military Drill (Ac. 600) ------3

Sophomore Class.

First Term.

Physics (Ac. 504) ----------3
History (Ac. 202) ----------2
xMathematics (Ac. 403) ------5
Botany (Agr. 301) ----------6
English (Ac. 103a) ----------3
Physiology (Vet. 101) --------2
Chemical Lab'y (Agr. 110a) --6
Military Drill (Ac. 600) ------3

Second Term.

Physics (Ac. 504) ----------3
History (Ac. 202) ----------2
English (Ac. 103c) ----------3
xMathematics (Ac. 403) ------5
Botany (Agr. 301) ----------6
Physiology (Vet. 101) --------2
Chemical Lab'y (Ac. 110a) ---6
Military Drill (Ac. 600) ------3

Third Term.

Physics (Ac. 504) ----------3
English (Ac. 103c) ----------3
xMathematics (Ac. 404) ------5
Botany (Agr. 301) ----------6
Physiology (Vet. 101) --------2
Chemical Lab'y (Agr. 110a) ---6
Military Drill (Ac. 600) ------3

xWith approval of faculty other work may be substituted.

Junior Class.

First Term.

German (Ac. 305a) ----------4
English (Ac. 107) ----------3
Pharmacy (Agr. 401a) -------3
Pharmaceutical Lab'y (Agr. 401b) ----------8
Chemical Lab'y (Agr. 110b) --6
Military Tactics (Ac. 601) ----1
Military Drill (Ac. 600) ------3

Second Term.

German (Ac. 305b) ----------3
English (Ac. 107) ----------3
xPharmacy (Agr. 401a) -------3
Pharmaceutical Laboratory Agr. 401b) ----------8
Pharmacognosy (Agr. 402) ----4
Chemical Lab'y (Agr. 110b) ---6
Military Tactics (Ac. 601) ----1
Military Drill (Ac. 600) ------3

Third Term.

German (Ac. 305c) ----------4
English (Ac. 107) ----------3
Phar. Chem. (Agr. 406) -------3
Pharmacognosy (Agr. 402) ---4
Chemical Lab'y (Agr. 110b) --6
Military Tactics (Ac. 602) ----1
Military Drill (Ac. 600) ------3

xSubstitute Phar Chem. (Agr. 406) latter half term.

SENIOR CLASS.

First Term.

Bacteriology and Bact. Lab'y (Vet. 108) 6
Organic Chem. (Agr. 103a) 2
Pharmacy (Agr. 403a) 3
Adv. Pharmacog. (Agr. 404) 3
Military Science (Ac. 603) 1
Chemical Lab'y (Agr. 110c) 6
Pharmaceutical Laboratory (Agr. 403b) 12

Second Term.

Bacteriology and Bact. Lab'y (Vet. 108) 6
Adv. Pharmacog. (Agr. 404) 4
United States Phar. (Agr. 407) 3
xPharmacology (Vet. 120) 3
Organic Chem. (Agr. 103a) 2
Pharmacy (Agr. 403a) 3
Military Science (Ac. 604) 1
Chemical Lab'y (Agr. 110c) 6
Alkaloidal Assay (Agr. 403c) 9

Third Term.

United States Phar. (Agr. 407) 3
Pharmacology (Vet. 120) 3
Organic Chem. (Agr. 103a) 2
Pharmacy (Agr. 403a) 3
Prescriptions (Agr. 405) 3
Military Science (Ac. 605) 1
Toxicology (Agr. 110e) 6
Urinalysis (Vet. 117) 3
Prescription Laboratory (Agr. 403d) 6
Pharmaceutical Testing and Drug Analysis (Agr. 403e) 6
xSubstitute for Bacteriology in latter half term.

PRE-MEDICAL COURSE

FIRST YEAR.

First Term.

xEnglish (Ac. 102a, c) 5
Inorganic Chemistry (Agr. 101) 4
Qual. Chemical Lab'y (Agr. 110a) 6
Trigonometry (Ac. 401) 5
Botany (Agr. 301) 6
Physiology (Vet. 101) 2
Military Drill (Ac. 600) 3

Second Term.

xEnglish (Ac. 102a, b) 5
Inorganic Chemistry (Agr. 101) 4
Qual. Chemical Laboratory (Agr. 110a) 6
College Algebra (Ac. 402) 5
Botany (Agr. 301) 6
Physiology (Vet. 101) 2
Military Drill (Ac. 600) 3

Third Term.

xEnglish (Ac. 102a, b) 5
Inorganic Chemistry (Agr. 101) 4
Qual. Chem. Lab'y (Agr. 110a) 6
College Algebra (Ac. 402) 5
Botany (Agr. 301) 6
Physiology (Vet. 101) 2
Military Drill (Ac. 600) 3
xLatin, French or German may be substituted.

SECOND YEAR.

First Term.

French or German 4
Organic Chemistry (Agr. 103a) 2
Quant. Chem. Lab. (Agr. 110b) 6
Physics (Ac. 504) 3
Physical Laboratory (Ac. 502) 2
Zoology (Agr. 701) 5
Histology (Vet. 108) 5
Military Drill (Ac. 600) 3

Second Term.

French or German 3
Organic Chem. (Agr. 103a) 2
Quant. Chem. Lab. (Agr. 110b) 6
Physics (Ac. 504) 3
Physical Laboratory (Ac. 502) 2
Zoology (Agr. 701) 5
Histology (Vet. 108) 5
Military Drill (Ac. 600) 3

Third Term.

French or German 4
Organic Chemistry (Agr. 103a) 2
Quant. Chem. Lab. (Agr. 110b) 6
Physics (Ac. 504) 3
Physical Lab'y (Ac. 502) 2
Toxicology (Agr. 110e) 7
Histology (Vet. 108) 5
Physiological Chem. (Vet. 119) 4
Military Drill (Ac. 600) 3

SCHOOL OF AGRICULTURAL EDUCATION

Freshman Class.

First Term.

English (Ac. 102a, c) 5
History (Ac. 201) 2
Chemistry (Agr. 101) 4
Agr. Mathematics (Ed. 24) 3
Farm Carpentry (Ed. 25) 6
Agr. Drawing (Ed. 28) 6
Poultry Husbandry (Ed. 30) ..4
Military Drill (Ac. 600) 3

Second Term.

English (Ac. 102a, b) 5
History (Ac. 201) 2
Chemistry (Agr. 101) 4
Agr. Mathematics (Ed. 24) 3
Farm Blacksmithing (Ed. 26) ..6
Agr. Surveying (Ed. 29) 5
Poultry Husbandry (Ed. 31) ..4
Military Drill (Ac. 600) 3

Third Term.

English (Ac. 102a, b) 5
History (Ac. 201) 2
Chemistry (Agr. 101) 4
Agr. Mathematics (Ed. 24) 3
Farm Machinery (Ed. 27) 6
Agr. Surveying (Ed. 29) 5
Poultry Husbandry (Ed. 32) ..4
Military Drill (Ac. 600) 3

Sophomore Class.

First Term.

Agr. English (Ed. 36, 37) 3
History (Ac. 202) 2
Corn (Agr. 202) 4
Home Projects and School Gardens (Ed. 33) 3
Zoology (Agr. 701) 6
Botany (Agr. 301) 6
Physics (Ac. 504) 3
Organic Chemistry (Agr. 103b) 3
Animal Husbandry (Agr. 802) ..2
Military Drill (Ac. 600) 3

Second Term.

Agr. English (Ed. 36, 37) 3
History (Ac. 202) 2
Home Projects and School Gardens (Ed. 33) 3
Zoology (Agr. 701) 6
Botany (Agr. 301) 6
Physics (Ac. 504) 3
Organic Chemistry (Agr. 103b) 3
Animal Husbandry (Agr. 803) ..4
Farm Accounts (Agr. 203) 2
Military Drill (Ac. 600) 3

Third Term.

Agr. English (Ed. 36, 37) 3
Home Projects and School Gardens (Ed. 33) 3
Botany (Agr. 301) 6
Physics (Ac. 504) 3
Agr. Chemistry (Agr. 105) 4
Small Grains (Agr. 203) 4
Horticulture (Agr. 601) 6
Military Drill (Ac. 600) 3

Junior Class.

First Term.

Vocational Psychology (Ed. 2) 2
History of Agr. Education (Ed. 8) 2
Rural Social Conditions (Ed. 34) 3
Dairying (Agr. 804) 4
Veterinary Science (Vet. 102) 5
Agr. Bacteriology (Agr. 303) ..6
Landscape Gardening (Agr. 602) 2
Drainage and Terracing (Agr. 520) 4
Military Tactics (Ac. 601) 1
Military Drill (Ac. 600) 1

Second Term.

Principles of Education (Ed. 3) 2
History of Agr. Education (Ed. 8) 2
Principles of Rural Economics (Ed. 35) 3
Swine Judging (Agr. 805) 4
Veterinary Science (Vet. 102) ..5
Plant Physiology (Agr. 304) ...6
Vegetable Gardening (Agr. 603) 4
Orchard Technique (Agr. 604) 2
Agr. Geology (Eng. 434) 4
Military Tactics (Ac. 601) 1
Military Drill (Ac. 600) 3

Third Term.

Principles of Education (Ed. 3) 2
History of Agr. Education (Ed. 8) 3
Sheep Judging (Agr. 806) 2
Veterinary Science (Vet. 102) ..5
Plant Physiology (Agr. 304) ...6
Vegetable Gardening (Agr. 603) 4
Forage Plants (Agr. 205) 4
Military Tactics (Ac. 602) 1
Military Drill (Ac. 600) 3

SENIOR CLASS.

Group A, Agronomy.
Group B, Horticulture.
Group C, Animal Husbandry.

Electives: Senior candidates for the degree of Bachelor of Science in Agricultural Education shall elect a sufficient number of courses in Education and in the College of Agriculture to make, with the required courses listed below, a total of not fewer than twenty-one session-hours. All electives shall be made with the advice and approval of the Director of the School of Agricultural Education and the Professors concerned. Electives shall be made with the view of developing particular mastery in not less than two nor more than three subjects.

Thesis: All candidates for the degree, shall, in addition to completing the prescribed courses and electives, write a thesis on some subject in the field of his major interests. This thesis must show original investigation and a comprehensive mastery of the subject chosen.

GROUP A, AGRONOMY.

First Term.

Teaching High School Agriculture (Ed. 7) ----------3
Agricultural Extension Teaching (Ed. 10) ----------2
Agricultural Conference (Ed. 39) ----------
Agricultural Journalism (Ed. 38) ----------1
Soils and Soils Lab'y (Agr. 211)5
Cotton (Agr. 206) ----------4
Entomology (Agr. 702) ------5
Military Science (Ac. 603) ----1

Second Term.

Teaching High School Agriculture (Ed. 7) ----------3
*Practice in Agricultural Teaching (Ed. 11) --------
Agricultural Conference (Ed. 39) ----------
The High School Pupil (Ed. 14)2
Agricultural Journalism (Ed. 38) ----------1
Cotton Classing (Agr. 207) ----2
Soils and Soils Lab'y (Agr. 211)5
Farm Engines (Agr. 521) ----2
Farm Machinery (Agr. 522) --2
Forestry (Agr. 608) ----------5
Military Science (Ac. 604) ----1

Third Term.

Teaching High School Agriculture (Ed. 7) ----------3
Agricultural Conference (Ed. 39) ----------
Agricultural Journalism (Ed. 38) ----------1
Farm Management (Agr. 208) -4
Soils and Soils Lab'y (Agr. 211)5
Bees and Bee Keeping (Agr. 703) ----------5
Military Science (Ac. 605) ----1

*Or in third term.

GROUP B, HORTICULTURE.

First Term.

Teaching High School Agriculture (Ed. 7) ----------3
Agricultural Extension Teaching (Ed. 10) ----------2
Agricultural Conference (Ed. 39) ----------
Agricultural Journalism (Ed. 38) ----------1
Soils and Soils Lab'y (Agr. 211)5
Entomology (Agr. 702) --------5
Fruit Growing (Agr. 605) -----5
Canning (Agr. 606) ----------3
Plant Pathology (Agr. 305) ---6
Military Science (Ac. 603) ----1

Second Term.

Teaching High School Agriculture (Ed. 7) ----------3
*Practice in Agricultural Teaching (Ed. 11) --------
Agricultural Conference (Ed. 39) ----------
The High School Pupil (Ed. 14)2
Agricultural Journalism (Ed. 38) ----------1
Soils and Soils Lab'y (Agr. 211)5
Fruit Growing (Agr. 605) -----5
Plant Pathology (Agr. 305) ----6
Forestry (Agr. 608) ----------5
Military Science (Ac. 604) ----1

Third Term.

Teaching High School Agriculture (Ed. 7) ----------3
Agricultural Conference (Ed. 39) ----------

Agricultural Journalism (Ed. 38) ----------1
Soils and Soils Lab'y (Agr. 211)5
Plant Breeding (Agr. 609) ----5
Fruit Growing (Agr. 605) -----5
Bees and Bee Keeping (Agr. 703) ----------5
Military Science (Ac. 605) ----1
*Or in third term.

GROUP C, ANIMAL HUSBANDRY

First Term.

Teaching High School Agriculture (Ed. 7) ---------3
Agricultural Extension Teaching (Ed. 10) ----------2
Agricultural Conference (Ed. 39) ----------
Agricultural Journalism (Ed. 38) ----------1
Soils and Soils Lab'y (Agr. 211)5
Animal Breeding (Agr. 807) ---2
Advanced Feeding (Agr. 808) -3
Live Stock Management (Agr. 812) ----------3
Military Science (Ac. 603) ----1

Second Term.

Teaching High School Agriculture (Ed. 7) ----------3
*Practice in Agricultural Teaching (Ed. 11) --------
Agricultural Conference (Ed. 39) ----------
The High School Pupil (Ed. 14)2
Agricultural Journalism (Ed. 38) ----------1
Soils and Soils Lab'y (Agr. 211)5
Advanced Feeding (Agr. 808) -3
Meats (Agr. 809) ----------2
Judging Horses and Mules (Agr. 811) ----------2
Live Stock Management (Agr. 812) ----------3
Herd Book Study (Agr. 813) --2
Military Science (Ac. 604) ----1

Third Term.

Teaching High School Agriculture (Ed. 7) ----------3
Agricultural Conference (Ed. 39) ----------
Agricultural Journalism (Ed. 38) ----------1
Soils and Soils Lab'y (Agr. 211)5
Advanced Feeding (Agr. 808) -3
Live Stock Management (Agr. 812) ----------3
Military Science (Ac. 605) ----1
*Or in third term.

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

Freshman Class.

First Term.

General Chem. (Agr. 101) ----4
Physiology (Vet. 101) --------2
English (Ac. 102a) ----------3
Anatomy and Anat. Lab'y (Vet. 107) ----------10
Histology (Vet. 108) ---------5
Stock Judging (Vet. 109) -----2
Chemical Lab'y (Agr. 110a) --6
Vet. Science (Vet. 102) -------2
Clinics (Vet. 112) ----------3
Military Drill (Ac. 600) ------3

Second Term.

General Chem. (Agr. 101) ----4
Physiology (Vet. 101) --------2
English (Ac. 102b) ----------3
Anatomy and Anat. Lab'y (Vet 107) ----------10
Histology (Vet. 108) --------5
Stock Judging (110) ---------4
Chemical Lab'y (Agr. 110a) ---6
Vet. Medicine (Vet. 106) ------3
Clinics (Vet. 112) ----------3
Military Drill (Ac. 600) ------3

Third Term.

General Chem. (Agr. 101) ----4
Physiology (Vet. 101) --------2
English (Ac. 102b) ----------3
Stock Judging (111) ----------2
Anatomy and Anat. Lab'y (Vet. 107) ----------10
Histology (Vet. 108) ---------5
Chemical Lab'y (Agr. 110a) --6
Vet. Medicine (Vet. 106) -----3
Clinics (Vet. 112) ----------3
Military Drill (Ac. 600) ------3

Sophomore Class.

First Term.

Embryology (Vet. 113) -------3
Organic Chem. (Agr. 103b) ---3
Anatomy (Vet. 115) ----------10
Vet. Medicine (Vet. 116) ------3
Clinics (Vet. 117) ----------6
Bacteriology (Vet. 118) ------8
Military Drill (Ac. 600) ------3

Second Term.

Organic Chem. (Agr. 103b) ---3
Anatomy (Vet. 115) ----------8
Vet. Medicine (Vet. 116) ------3
Pharmacy (120) ----------10
Bacteriology (Vet. 118) ------6
Clinics (Vet. 117) ----------8
Military Drill (Ac. 600) ------3

Third Term.

Physiological Chem. (119) ---4
Vet. Medicine (Vet. 116) -----3
Anatomy (Vet. 115) ----------8
Pharmacy (120) ----------10
Bacteriology (Vet. 118) ------6
Botany (Agr. 302) ----------6
Clinics (Vet. 117) ----------8
Military Drill (Ac. 600) ------3

Junior Class.

First Term.

Surgery (Vet. 122) ----------4
Obstetrics (Vet. 123) --------2
Anatomy (Vet. 124) ----------8
Vet. Medicine (Vet. 126) -----3
Botany (Agr. 307) ----------5
Vet. Physiology (Vet. 127) ----3
Clinics (Vet. 128) ----------10

Second Term.

Surgery (Vet. 122) ----------4
Obstetrics (Vet. 123) --------2
Anatomy (Vet. 124) ----------8
Vet. Medicine (Vet. 126) -----4
Vet. Physiology (Vet. 127) ---4
Infectious Diseases (Vet. 129) 3
Clinics (Vet. 128) ----------10

Third Term.

Surgery (Vet. 122) ----------4
Obstetrics (Vet. 123) ---------2
Vet. Medicine (Vet. 126) ------4
Vet. Physiology (Vet. 127) ----3
Infectious Diseases (Vet. 129) 3
Anatomy (Vet. 124) ----------8
Clinics (Vet. 128) ----------10

Senior Class.

First Term.

Therapeutics (Vet. 131) ------5
Principles of Breeding (Agr. 808) ----------2
Surgery (Vet. 135) ----------2
Meat Inspection (Vet. 138) ----3
Pathology (Vet. 137) ---------7
Clinics (Vet. 136) ----------8
Thesis (Vet. 143) ----------4

Second Term.

Therapeutics (Vet. 131) ------5
Dairying (Agr. 814) ---------4
Meat Inspection (Vet. 138) ----3
Parasites (Vet. 140) ---------3
Clinics (Vet. 135) ----------10
Pathology (Vet. 137) --------8
Thesis (Vet. 143) ----------4

Third Term.

Toxicology (Agr. 110e) ------7
Urinalysis (Vet. 117) --------3
Milk Inspection (Vet. 139) ----5
Surgical Exercises (Vet. 141) --3
Parasites (Vet. 140) ---------3
Feeds and Feeding (134) -----3
Clinics (Vet. 136) ----------10
Thesis (Vet. 143) ----------4

DESCRIPTION OF COURSES

ACADEMIC DEPARTMENTS

PSYCHOLOGY AND ECONOMICS

PROFESSOR THACH.
PROFESSOR RUTLAND.

1. Courses in psychology will be given in the department of education.

2. Economics: The object of this course is to give the student a general view of economics. It includes a study of wealth, value, price, competition, monopolization, production, and distribution; the evolution of industry, and the leading economic questions of today. Collateral reading, oral reports, and occasional written papers are required. *Two hours, second and third terms. M. W.* 11-12.

ENGLISH

PROFESSOR RUTLAND.
ASSISTANT PROFESSOR TAYLOR.
ASSISTANT MARTIN.

The mastery of one's native language is a pre-requisite to high attainment in any profession. In a technological institute, where only brief courses in foreign language can be pursued by most of the students, this mastery of the native speech becomes, if possible, even more essential to future success than in the classical colleges. This consideration alone would justify courses in English in technological institutions, but when we add to this the great cultural value of the study of language and literature, the wisdom of compulsory courses becomes obvious. The courses in English comprise the study of the theory of composition together with much practice in its application, both in writing and in speaking, a survey of the history of American and English literature, and an intensive study of the greatest periods and writers in English literature.

Requirements in English for admission are set forth on page 26. No student will be classed as regular in any course until he has met these requirements.

The requirements as to thesis and as to proficiency in English for certificates and diplomas are set forth on page 34.

The following courses are offered:

FRESHMAN CLASS.

102. (a) Composition for freshmen. The principles of exposition, narration and description are studied, but special emphasis is given to the different types of exposition. Weekly themes and frequent exercises are required. When practicable, the instructors hold fortnightly conferences with students in order to correct, assist and stimulate them. Textbook to be announced. ~~*Three hours, first term; two hours, second and third terms. Daily* 10-11.~~

(b) American literature for freshmen. A survey of the history of American literature together with the study of selected masterpieces. The recitations will be devoted chiefly to the discussion of the literature assigned for study, but the students will be required to master a concise history of the subject and to keep notes on both the history and the selections. Text-books to be announced. *Three hours, second and third terms. M. W. F.* 10-11.

(c) Types of literature. This course is an appreciative study of some of the chief literary types—the essay, the drama, lyric and narrative verse, and the novel. Illustrative readings will be selected for the most part from American literature, but not entirely. *Two hours, first term. T. Th.* 10-11.

(d) Public speaking. This course is a study of the principles of public speaking. Attention is given to voice building bodily expression, and oral interpretation of selected speeches. Those taking the course during first term will substitute it for (c), those taking it in the second or third term will substitute it for (a). Text-book to be announced. *Two hours, half term.*

SOPHOMORE CLASS.

103. (a) Argumentation for sophomores. This course consists of the study of the essentials of argumentation and requires extensive practice in gathering material, note-making, brief-making, analysis and criticism of evidence, and practical debating. Weekly themes in argumentative form and one lengthy argument at the end of the course are required. Text-book to be announced. *Three hours, first term. M. W. F.* 9-10.

(b) Debating for sophomores. All sophomores are required to meet at least once fortnightly at some other hour than the regular recitation period for drill in parliamentary law and for practice in actual debating.

(c) English literature for sophomores. This course covers the whole range of English literature from Anglo-Saxon times to our own, and consists of the interpretive and critical study of selected poetry and prose. The aim is to give the student

not only a definite conception of the periods of literature and of the forces in life that found expression in literature, but also an appreciative understanding of the greater writers and productions. The students are required to keep full notes on the lectures as well as on the class study of selections. Text-books to be announced. *Three hours, second and third terms. M. W. F.* 9-10.

(d) Public speaking. This course may be chosen by sophomores instead of the actual debating required in (b). It is a study of the ends of speech making and the means of securing effectiveness and comprises practical exercises in collecting and organizing material in addition to the study of style and structure of selected speeches and readings. Text-book to be announced.

JUNIOR CLASS.

107. In the junior and senior years students pursuing the general course may form a separate section from the rest of the class. This section is required to do a greater amount of reading and written work than the technical students. Juniors may elect one of the following courses, but the department reserves the right to omit a course in case only a very small number elect it.

(a) Nineteenth century literature. The time will be about equally divided between Wordsworth and his contemporaries and the writers of the Victorian period. This course will involve wide reading, discussions of the technique of the writers, their art, growth of mind, general interpretation of life, and their relation to their own time and discussions of the various movements in science, politics, philosophy, and art in their relation to the literature of the period. The work is carried on partly by lectures and partly by class study of representative masterpieces. Students will be required to take notes on both lectures and class discussions, and to write weekly reports or themes. Text-book will be announced. *Three hours, entire session. M. T. Th.* 12-1.

(b) The essay and the novel. The larger part of the first term will be given to the study of the origin and development of the English Essay. Selected essays representing the seventeenth and eighteenth centuries will be read, and much time will be devoted to the essay of the nineteenth century. The rest of the year will be devoted to the history of the novel. Representative novels from the eighteenth century to the present time are studied; and special attention is given to technic, plot and character analysis, relation to other forms of literature, the writer's conception of his art, and style.

Text-book to be announced. *Three hours, entire session. M. T. Th.* 12-1.

(c) Contemporary literature. This course includes a study of recent tendencies in the drama, novel, short story and essay. Magazines such as the Atlantic Monthly, the Nation or the Dial are used as points of departure, but most of the work will consist of extensive assigned readings out of class, together with class-room reports and discussions. Open also to seniors. *Three hours, entire session. M. T. Th.* 12-1.

SENIOR CLASS.

108. The following coures are offered for seniors:

(a) Shakespeare. The development of the English Drama before Shakespeare willl be reviewed briefly through assigned reading and lectures and the life of Shakespeare will be included in the matter for final examination, but the class room instruction will be devoted chiefly to a careful study of the plays. During the first few weeks several plays of the different types and representative of the different periods of authorship are given brief treatment. Most of the time, however, is given to the close study of two plays, one comedy, and one tragedy. Text-books to be announced. *Two hours, first term. M. W.* 11-12.

108b. Advanced composition for engineering students. This course is open to both seniors and juniors. The work will consist of themes on technical subjects and quizzes based upon technical reading. Weekly themes of from 1000 to 1500 words are required. There will be individual conferences and class discussions of the papers submitted. The course includes training in condensing and expanding articles, and the making of reports. The second term is given to the production of a weekly technical magazine. The third term is given to the writing, in weekly chapters, of extended themes. The class will be limited to twenty students.

108c. Advanced composition for agricultural students. A parallel course to 107b.

110. Methods of teaching English. If a sufficient number of students apply to the head of the department, a course in methods of teaching English will be offered, the text-book and hours to be determined later.

GRADUATE STUDENTS.

The following courses have been given to graduate students:

(a) Shakespeare: Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV, Richard III, King John.

(b) Dryden's Poetical Works: Arnold's Dramatic Poesy, Yonge's Essay on Satire, Saintsbury's Dryden, Pope's Poetical

Works, Pattison's Satire, Stephen's Pope, Gosse's From Shakespeare to Pope, and Eighteenth Century Literature.

(c) English literature of the eighteenth century: Addison Pope, Gray, Goldsmith, Burns, Cowper and Burke.

(d) American literature: Longfellow, Lowell, Poe.

(e) The English Essay: Bacon, Addison, Steele, Swift, Johnson, Goldsmith, Macaulay, DeQuincey, Lamb, Carlyle.

(f) Milton's Poetical Works: Life, Pattison, Brooke.

(g) Elizabethan, Jacobean, and Caroline literature: Greene, Johnson, Marlowe, Webster, Beaumont, and Fletcher, Brown, Herrick, Bunyan and others.

(h) English literature, 1832-1894.

(i) Chaucer.

(j) English prose fiction.

For the year 1918-19, one of the following courses may be elected by the graduate class:

Anglo-Saxon: A study of the grammar and phonology of Anglo-Saxon, together with the reading of select prose and verse. The class will probably read a portion of Beowulf.

Chaucer: A study of the life and times of Chaucer, together with the readings and critical study of a large portion of his collected writings.

Prose fiction: A study of the development of English fiction, with special emphasis upon the modern novel.

Shakespeare: A critical study of the dramatist's art.

HISTORY AND LATIN.

PROFESSOR PETRIE.
INSTRUCTOR REYNOLDS.
ASSISTANT WARD.
ASSISTANT BALCH.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements, and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Instruction is given by text-books, lectures and class discussion, but a constant effort is made to stimulate to wider reading and research in the library. The following courses are offered:

FRESHMAN CLASS.

201. Industrial and constitutional history of the United States: The course consists of lectures and text-book work, and is somewhat advanced. All students who take it must have previously completed some high school text-book on the history of the United States. Text-books: Hart's Formation of the Union; Wilson's Division and Reunion. *Two hours, entire session. T. Th.* 9-10.

SOPHOMORE CLASS.

202. History of Modern Europe: Required of all members of the sophomore class. Some previous knowledge of the subject is desirable, but is not necessary. Text-book: Hazen's Europe Since 1815. *Two hours, first and second terms. T. Th.* 10-11.

203. Civics: This is an advanced course in the nature of our government and its practical working. Text-book: Beard's American Government and Politics. *Three hours, entire session.*

204. A brief course in recent history: Not required of any students, but those who expect to take the general course may take this work. Text-book: Hazen's Europe Since 1815, and current periodicals. *Two hours, third term. T. Th.* 10-11.

SENIOR CLASS.

205. English constitutional history: A course for one year for members of the senior class. Text-book: Ransome's The Growth of the English Constitution.

JUNIOR AND SENIOR CLASSES.

206. Historical laboratory: An opportunity for advanced work in United States history, for those students of the general course who elect it as laboratory work, and for any others who are properly qualified.

The chief object kept in view is training in historical research and in the formation of independent but careful opinions based on the original sources of information, as well as on the standard authorities. Emphasis is laid on the importance of securing proper material for investigation, and every incentive is given to the collection and use of new documents, papers, and letters illustrative of Southern, and especially of Alabama history. The method of work is as follows: Informal lectures are given on important and suggestive points as: The cause of the Revolution; the Constitutional Convention; the War of 1812; the Missouri Compromise; the Monroe Doctrine; Texas and Mexico; the Compromise of 1850; the Kansas Struggle; the Dred Scott Decision; Secession. After each lecture a general discussion follows, and the topics connected with it are assigned to the students with an outline of the points to be

investigated. The final results are collected by each student according to his own judgment in his note-book, which is then passed in to the professor for correction and suggestion. Textbook: McDonald's Select Statutes. *Six hours, entire session. T. Th.* 2-4, *and reading two hours.*

International Law: Brief courses are offered for all juniors and seniors. See Military Science and Tactics. *One hour a week for five weeks. F.* 12-1.

Military History: A course of five lectures discussing the strategy of the wars in which the United States have been engaged. This is for all juniors. See Military Science and Tactics. *F.* 11-12.

GRADUATE COURSE.

207. Graduate students are expected to take part in the junior and senior discussions, and will also meet with the professor for conference about their work. Each year some special field is taken for investigation and discussion. Those who take history as their major study are expected to devote a large part of their time to research upon some topic upon which they can consult the original sources of information.

208. Teachers' course: Conference every other week with those students who expect to teach history.

LATIN.

The objects kept in view in this department are: An accurate knowledge of the forms and syntax; a familiarity with Latin words, their etymology and their English derivatives, an appreciation of Latin literature and an intelligent conception of Roman history and civilization, both in themselves and in their effect in the modern world.

A systematic course in instruction is given in the forms and syntax. These are taught both deductively from a grammar and inductively from the text read. Translation is constantly practiced, sometimes at sight, sometimes after being assigned for preparation. English passages based on a familiar author or illustrative of special constructions are put in Latin, both orally and in writing. Great emphasis is laid on the etymology of the words in the text read.

In connection with every author studied in class, a course of reading in English is prescribed descriptive of his life, work and times. The historical setting and the literary value of his writings are carefully discussed, and frequent comparisons are made with modern authors.

In the freshman and sophomore classes, the study of the language is the chief point. In the higher classes a broader view is taken. The junior class makes a special study of

Roman history and Roman historians. The senior class studies Roman poetry and Roman life.

The following courses are offered with the text-books named:

209. Freshman class: Exercises, Cicero, Sallust, or equivalent. Allen and Greenough's Latin Grammar. *Three hours, first term; four hours, second and third terms. M. T. Th. F.* 11-12.

210. Sophomore class: Livy, Allen and Greenough's Grammar, Bennett's Latin Composition. *Five hours, entire year. Daily* 8-9.

211. Junior class. Livy, Tacitus, grammar, Roman History, exercises. Allen and Greenough's Grammar, Botsford's History of Rome. *Three hours, entire year. M. W. F.* 9-10.

212. Senior Class: Horace, Plautus, Latin literature, grammar. Allen and Greenough's Grammar. *Three hours, entire year. M. W. F.* 10-11.

213. Pedagogical course: During the spring term a pedagogical course is given in Latin. It is designed chiefly, but not exclusively, for members of the senior class. It includes a discussion of the methods of teaching forms and syntax, as well as concrete illustrations of the way to overcome the difficulties in Cæsar and Virgil.

MODERN LANGUAGES.

PROFESSOR WIATT.
ASSISTANT ELIZONDO.

The chief aim in this department is to give the student a thorough and accurate knowledge of the elementary principles of the subjects taught, and to enable him to read with facility the ordinary French and German at sight. To train the ear, acquire a correct pronunciation and some facility in speaking all recitations are supplemented, as far as practicable, by oral exercises in the languages themselves.

Opportunity for the study of Spanish is given students who elect that language.

FRENCH.

JUNIOR CLASS.

(301). (a) A course covering the essentials of grammar and pronunciation to enable the student to begin the reading of simple French prose. This course continues through the first term, three hours a week being given to the study of grammar and one hour to pronunciation and conversation. *Four hours, first term. T. Th.* 10-11., *F.* 3-5.

(b) The second term includes a course of reading in simple prose (2 hours a week), and the continuation of grammar with

translations of English into French (1 hour a week). *Three hours, second term. T. Th.* 10-11, *F.* 3-4.

(c) During the third term the reading of more advanced selections in prose and poetry is begun (2 hours a week), grammar and composition (1 hour a week); and pronunciation and conversation (1 hour a week). *Four hours, third term. T. Th.* 10-11, *F.* 3-5.

SENIOR CLASS.

302. (a) A course in reading: Corneille and modern French plays (2 hours a week); laws of grammar and composition (1 hour a week); pronunciation and conversation (1 hour a week). *Four hours, first term. M.* 10-11, *T. Th.* 9-10, *F.* 4-5.

(b) The second term is given to the study of Racine, and the reading of modern French literature (2 hours a week), and to continued study of the structure and syntactical features of the languages in connection with translations into French. *Three hours, second term. M.* 10-11, *T. Th.* 9-10.

(c) The third term includes a study of Moliere (1 hour a week); the history of French literature (1 hour a week); more advanced work in grammar and composition (1 hour a week); and pronunciation and conversation (1 hour a week). *Four hours, third term. M.* 10-11, *T. Th.* 9-10, *F.* 4-5.

303. Teachers' course: During the spring term the work of the senior class will be so modified or supplemented, as to include a short pedagogical course for students who expect to teach French. This will consist chiefly of elementary work in grammar and syntax, and a study of the best methods of giving instruction in this subject. *Third term, senior year.*

GRADUATE STUDENTS.

304. Graduate course: Offered for students who wish to pursue the study of French beyond the scope to which a two-year course necessarily limits them. In addition to the authors studied in the lecture room, a wide and extensive reading of literature is prescribed.

TEXT-BOOKS.

First year: Frazer and Squair's Shorter French Course; Koren and Chapman's French Reader.

Second year: Corneille, Racine, Moliere, selected modern French plays, Duval's Histoire de la Literature Francaise; Frazer and Squair's French Grammar, French Composition.

GERMAN.

The following regular courses are given:

JUNIOR CLASS.

305. (a) A course embracing the fundamental principles of grammar and the essentials of pronunciation leading to the in-

telligent reading and translation of simple German texts (3 hours a week), and exercises in pronunciation and conversation (1 hour a week). *Four hours, first term. T. Th.* 8-9, *W.* 12-1, *M.* 4-5.

(b) In the second term the reading of simple prose is begun (2 hours a week), and grammar and composition continued (1 hour a week). *Three hours, second term. T. Th.* 8-9, *W.* 12-1.

(c) Reading of more difficult selections of prose and poetry is begun and continued throughout the third term (2 hours a week). Grammar and composition continued (1 hour a week), and conversational exercises (1 hour a week). *Four hours, third term. T. Th.* 8-9, *W.* 12-1, *M.* 4-5.

SENIOR CLASS.

306. (a) A course of reading in modern German (2 hours a week); structure and syntax of the language with translations into German (1 hour a week); conversation (1 hour a week). *Four hours, first term. M. W. F.* 8-9, *M.* 4-5.

(b) Schiller (2 hours a week); History of German Literature and composition (1 hour a week). *Three hours, second term. M. W. F.* 8-9.

(c) German lyrics and ballads (2 hours a week). German literature (1 hour a week), composition and conversation (1 hour a week). *Four hours, third term. M. W. F.* 8-9, *M.* 4-5.

307. A course for students from the scientific schools, including readings of various scientific subjects, selected to meet the requirements of the class (2 hours a week), grammar and composition (1 hour a week), and conversation (1 hour a week). *Four hours, entire session. Schedule to be arranged.*

308. Teachers' course: During the third term in the senior class of German, the course will be so modified, or supplemented, as to include a short pedagogical course for those students who expect to become teachers of this language. This will consist chiefly of elementary work in grammar and syntax, and a study of the best methods of giving instruction in the subject.

GRADUATE STUDENTS.

309. Advanced course: For those students who wish to pursue the study of German beyond the scope to which a two-year course necessarily limits them. Here, in addition to the authors studied in the lecture room, a wide and extensive reading of authors and literature is prescribed.

TEXT-BOOKS.

First year: Wesselhoeft's German Grammar, Huss's German Reader.

Second year: Schiller, Lessing, selected modern German plays, German lyrics, Bernhardt's Deutsche Litteraturgeschichte, Harris's German Grammar, German Composition.

SPANISH.

310. A course in Spanish is also given, embracing the fundamentals of the language, consisting of a study of the grammar, readings of modern Spanish selections and exercises in conversation. *Three hours, entire session. T. W. F.* 11-12.

Texts: Ingraham-Edgren's Brief Spanish Grammar; Turrell's Spanish Reader.

MATHEMATICS

PROFESSOR CRENSHAW.
PROFESSOR MESSICK.
PROFESSOR SHI.
INSTRUCTOR PIMM.
INSTRUCTOR STOKES.
INSTRUCTOR DONAHUE.

The courses of instruction offered in this department are designed to give the student that mental discipline and training in logic which will enable him to think and reason logically; as well as a thorough knowledge of the principles and formulas of pure mathematics and their practical applications in the engineering and other scientific professions.

The courses offered in the different classes in this department are as follows:

FRESHMAN CLASS.

401. Plane Trigonometry. *Five hours, first term. Daily* 8-9, 10-11, *and* 11-12.

402. Advanced Algebra. *Five hours, second and third terms. Daily* 8-9, 10-11, *and* 11-12.

SOPHOMORE CLASS.

403. Analytic Geometry. *Five hours, first and second terms. Daily* 12-1.

404. Introductory course in Calculus. *Five hours, third term. Daily* 12-1.

JUNIOR CLASS.

405. Calculus. *Five hours, entire year. Daily* 11-12.

GRADUATE STUDENTS.

407. Differential Equations. *Two hours, entire year.*

408. Methods of teaching mathematics. The department offers a course designed for teachers of elementary mathematics, or for those who expect to make this their profession. The elementary branches of mathematics will be reviewed and methods of teaching briefly discussed, keeping constantly in view the co-ordination of the lower branches with the higher.

The course will include also a brief *resume* of the history of the elementary subjects, a critical examination of the extant text-books; and finally, an outline of a course of study in advanced mathematics to be pursued by the teacher.

409. Projective Geometry. This course which aims to present the elements of the subject, will be offered to seniors and graduate students in architecture and engineering, and to those properly equipped who wish to pursue the subject of mathematics. *Hours to be arranged, third term.*

TEXT-BOOKS.

Palmer and Leigh's Trigonometry; Fite's College Algebra; Fine and Thompson's Coordinate Geometry; Smith and Granville's Elementary Analysis; Granville's Calculus; Leib's Problems in the Calculus; Cohen's Differential Equations.

PHYSICS.

PROFESSOR DUNSTAN.
ASSISTANT HEYMAN.
ASSISTANT SIMMONS.

The complete course in physics extends over two years and it is designed to give as far as possible an adequate and correct idea of the method of physical sciences and to lay the foundation for subsequent advanced work if the student desires to pursue the work further or intends to engage in any of the great engineering professions of which physics forms so important a basis.

Two of the courses offered are given in the sophomore year, one being a lecture course and the other a course in laboratory work. The lectures are illustrated by lecture table experiments, and the students are required to work numerous problems and exercises.

SOPHOMORE CLASS.

504. A lecture course in general physics required of all students who are candidates for the degree of Bachelor of Science. For entrance upon this course the student should have had one year's work in elementary physics and a working knowledge of plane trigonometry. The subjects treated are varied from year to year, but they consist in the main of mechanics of rigid bodies, heat, light, sound, electricity, etc. Written exercises will be required each week. *Three hours, entire session. M. W. F.* 10-11.

502. This is a laboratory course which is required of all students in engineering. Non-engineering students may select it as an optional subject. The laboratory experiments are care-

fully selected and they comprise work in general mensuration with instruments of precision, heat, light, sound and electricity. The student is required to write a full report of each experiment as he completes it, and the form of compiling data and expressing methods and results is given great weight in determining average grades. The work in the laboratory will be arranged so as to co-ordinate as far as possible with the work treated in the lecture course. Entrance upon the laboratory course requires the student shall have had at least one year of elementary physics. *Two hours, entire session. M. W. F.* 2-4.

SENIOR CLASS.

505. This lecture course is more advanced than the one given to the sophomores and it presupposes a knowledge of the calculus, both differential and integral. The subjects treated are varied from year to year. They are treated thoroughly and rigorously, and the student is encouraged to learn to use the language of mathematics in expressing his ideas. Attention is paid to the history of the development of the various subjects treated. Written exercises are required each week. *Two hours, first and second terms. T. Th.* 11-12.

506. Astronomy. A brief course in descriptive astronomy. *Two hours, third term. T. Th.* 11-12.

GRADUATE STUDENTS.

508. Mechanics. A course in mechanics is offered in which the methods of vector analysis are applied to the derivations of various principles and in the solutions of various problems. The course presupposes a thorough working knowledge of analytical geometry and the calculus. *Two hours, entire session.*

MILITARY SCIENCE AND TACTICS

MAJOR EDWARD T. WINSTON, U. S. A., RET.

The military department is maintained under the Federal Law of July 2nd, 1862, and the Act of Congress, June 3rd, 1916.

Under the latter law a regimental unit of the Senior Division of the Reserve Officers' Training Corps is organized under the administration of the War Department and the supervision of the Commanding General, South-Eastern Department.

An officer of the Regular Army is detailed as Professor of Military Science and Tactics. He is assisted by three sergeants detailed from the army.

The Professor of Military Science and Tactics is, by the appointment of college authorities, the Commandant of Cadets.

Under the Act of June 3rd, 1916, the college is provided with arms and equipment, and a uniform is furnished by the

Government for issue, by the College, to each member of the Reserve Officers' Training Corps. The uniform remains the property of the Government, and is for the use of the student only while he remains a member of the Training Corps. Insignia of rank are purchased by the cadet, at a small cost.

The course of instruction is a graded course, covering four years. When any member of the Senior Division of the Reserve Officers' Training Corps has completed two academic years in that division, and has been selected for further training by the president of the institution and by its professor of military science and tactics, and has agreed in writing to continue in the Reserve Officers' Training Corps for the remainder of his course in the institution, devoting five hours per week to the military training prescribed by the Secretary of War, and has agreed in writing to pursue the courses in camp training prescribed by the Secretary of War, he may be furnished, at the expense of the United States, with commutation of subsistence at such rate, not exceeding the cost of the garrison ration prescribed for the army, as may be fixed by the Secretary of War, during the remainder of his service in the Reserve Officers' Training Corps.

The course in camp training prescribed by the Secretary of War consists of two summer camps, not to exceed six weeks in any one year. Transportation to and from the camps and subsistence during such travel and while at the camp is furnished at the expense of the Government, as far as appropriations will permit.

No obligation to perform military service after graduation is incurred by the student.

The object of the military training in the Reserve Officers' Training Corps is to educate college men in the duties of a subaltern officer in the Army. After graduation he is as free as any other citizen.

The following uniform of standard cadet grey cloth has been prescribed for dress: coat and trousers as worn in the fatigue uniform at the United States Military Academy; cap, dark blue cloth with mohair braid band and brass cap ornament; shoes, tan leather. This uniform is purchased by the student.

The following uniform has been prescribed for summer wear, and to be worn at such times as may be ordered by the Commandant: trousers, grey dress; shirt, olive drab woolen cloth of approved shade and quality; cap, same as dress; shoes, same as dress; tie, black string tie of medium length; waist belt, woven web of olive drab color. The cost of shirt, tie and belt is about $3.50.

The entire body of students is organized as a regiment of two battalions and a band. The officers are selected as far as practicable from among the seniors and juniors who are pursuing the Advanced Course of the Reserve Officers' Training Corps. Selection is based upon an examination for each grade from coporal to captain inclusive. Moral fitness, including demerits and standing in studies, will be considered.

A band composed of cadets furnishes appropriate music for parades and other ceremonies and on special occasions. Members of the Reserve Officers' Training Corps are authorized to serve in the band so long as their regular course of instruction is not interfered with.

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant General of the Army, and to the Adjutant General of their respective states.

On graduation from the military department a student may make application for appointment as an officer in the Officers' Reserve Corps and when he has been appointed in that Corps he may make application for temporary commission as an additional second lieutenant in the Regular Army for a period of six months with full allowances and with pay of $100.00 per month. Both applications are made voluntarily. The graduates of the Reserve Officers' Training Corps are entitled to make application but there is no obligation to do so.

600. Basic course:

FRESHMAN CLASS.

1. Military art.

Three hours a week (counting 14 units).

(*a*) Practical. Weight 10.

Physical drill (Manual of Physical Training—Koehler); Infantry drill (U. S. Infantry Drill Regulations), to include the School of the Soldier, Squad and Company, close and extended order. Preliminary instruction sighting position and aiming drills, gallery practice, nomenclature and care of riflle and equipment.

(*b*) Theoretical. Weight 4.

Theory of target practice, individual and collective (use of landscape targets made up by U. S. Military Disciplinary Barracks, Fort Leavenworth, Kans.); military organization (Tables of Organization); map reading; service of security; personal hygiene.

2. Military art.

Three hours a week (counting 14 units).

(*a*) Practical. Weight 10.

Physical drill (Manual of Physical Training—Koehler); Infantry drill (U. S. Infantry Drill Regulations), to include School of Battalion, special attention devoted to fire direction and control; ceremonies; manuals (Part V, Infantry Drill Regulations); bayonet combat; intrenchments (584-595, Infantry Drill Regulations); first-aid instruction; range and gallery practice.

(*b*) Theoretical. Weight 4.

Lectures, general military policy as shown by military history of United States and military obligations of citizenship; service of information; combat (to be illustrated by small tactical exercises); United States Infantry Drill Regulations, to include School of Company; camp sanitation for small commands.

SOPHOMORE CLASS.

3. Military art.

Three hours a week (counting 14 units).

(*a*) Practical. Weight 10.

The same as course 2 (*a*). Combat firing, is practicable, but collective firing should be attempted in indoor ranges by devices now in vogue at United States Disciplinary Barracks.

(*b*) Theoretical. Weight 4.

United States infantry Drill Regulations, to include School of Battalion and Combat (350-622); Small Arms Firing Regulations; lectures as in (*b*) course 2; map reading; camp sanitation and camping expedients.

4. Military art.

Three hours a week (counting 14 units).

(*a*) Practical. Weight 10.

The same as course 2 (*a*); signaling; semaphore and flag; first-aid. Work with sand table by constructing to scale entrenchments, field works, obstacles, bridges, etc. Comparison of ground forms (constructed to scale) with terrain as represented on map; range practice.

(*b*) Theoretical. Weight 4.

Lectures, military history (recent); service of information and security (illustrated by small tactical problems in patrolling, advance guards, rear

guards, flank guards, trench and mine warfare, orders, messages, and camping expedients); marches and camps (Field Service Regulations and Infantry Drill Regulations).

ADVANCED COURSE.

(Elective for those who have completed the basic course).

JUNIOR CLASS.

601-602 Advanced Course:—

5. Military art.

Five hours a week (counting 24 units).

(*a*) Practical. Weight 13.

Duties consistent with rank as cadet officers or non-commissioned officers in connection with the practical work and exercises laid down for the unit or units. Military sketching.

(*b*) Theoretical. Weight 11.

Minor tactics; field orders (studies in minor tactics, Unites States School of the Line); map maneuvers. Weight 8.

Company administration, general principles (papers and returns). Weight 1.

Military history. Weight 2. Professor Petrie.

6. Military art.

Five hours a week (counting 24 units).

(*a*) Practical. Weight 13.

Same as (*a*) course 5. Military sketching.

(*b*) Theoretical. Weight 11.

Minor tactics (continued); map maneuvers. Weight 8.

Elements of international law. Weight 2. Professor Petrie.

Property accountability; method of obtaining supplies and equipment (Army Regulations). Weight 1.

SENIOR CLASS.

603-605. Advanced course:

7. Military art.

Five hours a week (counting 24 units).

(*a*) Practical. Weight 13.

Duties consistent with rank as cadet officers or non-commissioned officers in connection with the practical work and exercises scheduled for the unit or units. Military sketching.

(*b*) Theoretical. Weight 11.

Tactical problems, small forces, all arms combined;

map maneuvers; court-martial proceedings (Manual for Courts-martial).

International relations of America from discovery to present day; gradual growth of principles of international law embodied in American diplomacy, legislation, and treaties. Professor Petrie.

Lectures: Psychology of war and kindred subjects. General principles of strategy only, planned to show the intimate relationship between the statesman and the soldier (not to exceed 5 lectures).

8. Military art.

Five hours a week (counting 24 units).

(*a*) Practical. Weight 13.

Same as course 7 (*a*).

(*b*) Theoretical. Weight 11.

Tactical problems (continued); map maneuvers. Rifle in war.

Lectures on military history and policy.

COLLEGE OF ENGINEERING, MINES AND ARCHITECTURE

CIVIL ENGINEERING.

PROFESSOR MITCHAM.
ASSISTANT PROFESSOR STELZENMULLER

FRESHMAN CLASS.

102. Plane surveying and levelling: Instruction is given in the use, care, and adjustment of instruments; standardizing tapes; determination of true meridian and magnetic declination; U. S. Public Land Surveys; methods of retracing old lines; farm surveys by various methods; plotting and calculating areas; dividing lands; surveying and mapping existing roads and streets; laying out townsites and establishing permanent monuments for same; differential levelling; profile levelling; construction of profiles and establishing grades; cross-section levelling; calculation of volumes of excavation and embankment; topographic surveying; mapping; terracing; staking out and giving grades for sewers, ditches, and drains; staking out buildings, etc. *Lectures and recitations, three hours, field practice two hours, second and third terms. M. W. F.* 8-9 *and* 11-12.

SOPHOMORE CLASS.

103. Higher surveying: Required of civil engineering students. Instruction will cover hydrographic surveying; mining surveying; city surveying; geodetic surveying and projection of maps. *Lectures and recitations two hours, field practice two hours, third term. T. Th.* 8-9.

104. Railway surveying: Required of students pursuing courses in civil and mining engineering. Instruction will cover preliminary surveys; theory of simple, reversed, and compound curves; transition curves; railway grades; vertical curves; construction surveys; calculation of quantities involved in railway construction. *Three hours recitations and two hours practice, first term. M. W. F.* 8-9.

106. Railway surveying: A course involving additional study of the railroad spirals; problems in location; fixing grades with reference to economy in construction and operation; approximate estimates of quantities from profiles; cross-sectioning and calculating of excavation and embankment; calculation of overhaul; borrow pits; planning, and staking out

railway structures. *Two hours recitations and two hours field and office practice, second term. T. Th.* 8-9.

JUNIOR CLASS.

107. Roads and pavements: A course of lectures and recitations covering economic principles involved in road improvement; analysis of resistance to traction; location, grades, and drainage of new roads; relocation and improvement of existing roads; construction of earth, gravel, macadam, concrete, brick, and bituminous roads, with study of properties of the various materials used in road construction, the methods employed in testing them, and the best specifications for constructing roads with the several materials; street plans of cities and towns; width and grades of streets; curbs and gutters; construction of various kinds of street pavements; storm drainage systems for cities; and construction of sidewalks. *Five hours, second and third terms. M. T. W. Th. F.* 9-10.

108. Road materials laboratory: The study and testing of various materials used in the construction of roads and pavements. The purpose of the course is to give the student an opportunity of becoming familiar with the physical properties, relative merits, and methods of testing the various materials. *Four hours, second term. T. Th.* 2-4.

109. Road and street improvement: A practical field and office course in making surveys, plans, and estimates for road and street improvements. *Four hours, third term. T. Th.* 2-4.

111. Graphic Statics: A course of lectures and drafting room exercises covering fundamental principles of equilibrium; composition and resolution of forces; the equilibrium polygon; graphical determination of stresses in trusses and framed structures, bending moment and shear in beams; center of gravity of given sections; moment of inertia. *Lectures two hours, drafting four hours, third term. M. W. F.* 2-4.

112. Structural drafting: The purpose of this course is to acquaint the student with the details of structural steel work, to train him in the neat and accurate execution of drawings, and to teach him in a practical way to solve some of the simpler problems in structural mechanics. *Six hours, first and second terms. M. W. F.* 2-4.

SENIOR CLASS.

113. Theory of structures: The purpose of this course is to teach the fundamental principles underlying the design of bridges, roofs, and other framed structures of metal and timber. The discussions cover determination of outer and inner forces acting on the structure; concentrated live load systems; design of beams, plate girders, simple trusses, bridge trusses with

secondary web systems, lateral and portal bracing, transverse bents, viaduct towers, cantilever bridges, three-hinged arches. *Five hours, first term. M. T. W. Th. F.* 10-11.

114. Structural design: This is a drafting room course in the practice of bridge and structural design and is the complement of course 113. Complete designs are worked out for a number of structures. *Nine hours, first and third terms. M. W. F.* 2-5.

115. Railroad engineering: The discussions cover the inception, promotion, and organization of railroad projects, organization and construction; the duties of the engineer; alignment and grades; rails and rail fastenings; cross ties; ballast and roadbed; culverts; bridges, and minor structures; turnouts, sidetracks and yards; terminals; elevation of outer rail; signalling; the locomotive and its work; the locomotive and grade problems; railroad expenditures; relation of operating expenses to number of trains; effect of rise and fall, distance, and curvature to train mile costs; railroad location, construction, and betterment surveys. *Three hours, first term. M. W. F.* 12-1.

116. Theoretical hydraulics: The discussions cover fluid pressures; equilibrium of floating bodies; fundamental principles of hydro-mechanics; methods of measuring the flow of water; Pitot tube; Venturi meter; orifices; tubes; sluices; weirs; nozzles; fire hose; flow in open channels, sewers, conduits, etc.; flow in pipes; dynamic action of flowing water; impulse wheels; turbines of various types; centrifugal pumps. *Five hours, second term. M. T. W. Th. F.* 10-11.

117. Practical hydraulics: This course is the complement of course 116, and its purpose is to bring the student into close touch with practical hydraulics. The work includes the determination of coefficients of orifices, tubes, and nozzles, determining loss of head in pipes and fire hose; measurement of water by weirs and meters; testing meters and pumps; gauging streams with current meter; visits of inspection to hydro-electric power plants under construction and in operation and reports on same. *Three hours, third term.*

118. Concrete and masonry construction: Discussions cover mathematical theories underlying the design of reinforced concrete beams, columns, slabs and arches; cements, limes and mortars; methods of mixing and placing plain and reinforced concrete; classification and properties of building stones; definition and construction of various classes of stone masonry; manufacture of brick; brick work; stone and brick arches; retaining walls; piers and abutments; shallow foundations; coffer dams; crib foundations; pile foundations; pneumatic

caissons; the freezing process; cylinder piers. *Three hours, second and third terms. M. W. F.* 12-1.

119. Sanitary engineering: The discussions cover the history of sanitary science; sanitary measures necessary for the prevention of zymotic diseases; the engineer's part in the campaign for the prevention of disease; the sources of water supply; its collection, purification, and distribution; sewerage, and sewerage design; sewage disposal; construction of sewers; pumping of sewage; sewage treatment plant; sewage farms; collection and disposal of garbage and rubbish; street cleaning. *Five hours, third term. M. T. W. Th. F.* 10-11.

120. Thesis: Each candidate for a degree in civil engineering is required to prepare a thesis upon some engineering subject which he may select. It must be the record of original investigation of some engineering subject or an original design of some engineering structure or project. The applicant for a degree shall file a written announcement of his subject with the professor of civil engineering not later than October 1st of his senior year; and the thesis shall be completed and submitted for approval not later than May 1st. During the first term the candidate shall devote not less than four hours a week to reading and collecting data for his thesis; during the second term he shall devote not less than nine hours a week and during the third term until May 1st not less than three hours a week to work on the thesis. He shall submit on Monday morning of each week a written statement of the time he has devoted to thesis work during the preceding week.

The student is also required to prepare and hand in one report or paper during first term and one during second term on subject of thesis or some allied subject approved by the professor.

SUMMER CAMP AND SCHOOL OF SURVEYING

105. Practical work in plane and higher surveying supplementing the instruction given in courses 102 and 103: This work is given at the summer camp immediately after commencement, between freshman and sophomore years. The purpose of this course is to give the student uninterrupted practice in the solution of practical problems in surveying similar to those which he will meet early in his career as an engineer; and the course is in line with the policy of the institute to combine theory and practice in all its branches of technical instruction. Students in this course are required to make notes of all the work done by the party to which he is assigned and to compute and plot all surveys made by his party. The parties will [illegible] conditions to the work will permit so [illegible] the greatest possible amount of practice [illegible] This course is required of all students

who are candidates for graduation in civil or mining engineering, and requires *forty-eight hours per week for four weeks.*

110. Practical work in railway, highway, and hydrographic surveying: This course is also given in the summer camp, and is required of all students who are candidates for graduation in civil or mining engineering, and will be taken between sophomore and junior years. The work includes the preliminary location and construction, surveys for a short line railroad, (about 2 miles), with maps, profiles, and estimates for same; all surveys, maps, profiles and estimates for a short line of highway, (about two miles); surveys for a dam and lake formed thereby; also gauging of stream flow with current meter. The time required for this course is *four weeks, forty-eight hours per week.*

The Institute furnishes tents, cots, camp stools, and all equipment of mess tents. The student will furnish his own bedding, soap and towels. A charge of $18.00, payable in advance, will be made for each course and will be applied to payment of the expense of the camp.

GRADUATE STUDENTS.

121. Graduate engineering course: This course requires three hours a week to be devoted to recitations and five hours a week to practical work in field or drafting room, throughout the session. The subjects may be varied to fit the needs of the students taking the course, but will be chosen from the following: Reinforced concrete; bridge design; sewerage and water supply; specifications and contracts.

122. Thesis: Graduate students applying for the degree of civil engineer will be required to prepare and present a thesis, the regulations governing thesis work being the same as those prescribed for seniors.

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN
PROFESSOR HILL
LABORATORY ASSISTANT STEWART

JUNIOR CLASS

201. Elementary theory of electricity and magnetism: A detailed study of the fundamental phenomena and laws of the subject. *Three hours, first term. T. W. Th.* 8-9.

202. Direct current machinery: Lectures and recitations on the principles of design, construction, installation, and operation of direct current generators and motors. This course treats in detail of the selection of machinery for given conditions, performance guarantees, acceptance tests for heating,

regulation, efficiencies, etc., parallel running troubles and remedies and repairs. A large number of carefully selected problems are assigned for solution and every effort is made to have the course cover not only the fundamental principles but also the broader engineering problems connected with the choice and use of this class of machinery. *Three hours, second term. T. W. Th.* 9-10.

203. Central station appliances and distribution for lighting and power service by direct currents: This course treats in detail of switch boards and appliances, calculation of circuits of various kinds, arc and incandescent lighting, metering, systems of charging for service, economics of generating plants. *Three hours, third term. T. W. Th.* 9-10.

204. Elementary theory of electricity and magnetism: For non-electrical engineering students. This course is similar to course 201, though not so detailed in treatment. *Two hours, first and second terms. T. Th.* 9-10.

204a. The construction and operation of both direct and alternating current machines; tests for efficiency, regulation and heating; the generation and distribution of electric power. In this course, it is intended to cover the application of electricity to the operation of machinery. For non-electrical students. *Two hours, third term. T. Th.* 9-10.

205. Electrical measurements and tests: For students in electrical engineering and mechanical engineering. The course consists of lectures and recitations upon the measurements of current, voltage, resistance, capacities, magnetic measurements, stray power, brake tests, heat runs, and related subjects. *One hour, entire session. M.* 9-10.

206. Laboratory work: For students in electrical engineering and mechanical engineering. The course consists of galvanometer work, resistance measurements of various kinds, magnetic measurements and various tests. *Four hours, first term.*

207. Laboratory work: For students in electrical engineering and mechanical engineering. The second term is devoted to the operation of direct current motors and dynamos, characteristics of direct current machinery, methods of adjusting, compounding, etc. *Four hours, second term.*

208. Laboratory work: For students in electrical engineering and mechanical engineering. Efficiency tests, location of troubles on machine and line, switch boards and appliances and general experience in the operation of a direct current station, are given. *Four hours, third term.*

209. Wiring and illumination. This course is intended to give a working knowledge of the laws of illuminaton and to train students in the writing of wiring specifications. The

work in wiring will cover the laws for the calculation of wires for lighting and power circuits, costs of wiring, and insurance rules governing the installations of wires. Problems will be worked in class covering the design of lighting schemes for special buildings. *Two hours, third term.*

SENIOR CLASS

210. Theory of alternating currents: Lectures, recitations and problems upon the phenomena of alternating current circuits, inductances, etc. The course is introductory to the subject of alternating current machinery, and in order to take it, students must have a fair working knowledge of differential and integral calculus and vector algebra. *Five hours, first term. M. T. W. Th. F.* 8-9.

211. Alternating current machinery: Lectures and recitations upon alternating current generators, calculation of alternator voltage, regulation by various methods, parallel running, transformers, induction motors, single phase commutator motors, synchronous motors, rotaries, etc.; harmonic analysis of wave forms, the expression of the same in Fourier series and calculation of the current produced in various circuits.

The course is somewhat advanced and in order to take it satisfactorily students must have a good knowledge of the mathematical theory of alternating currents. *Five hours, second term. M. T. W. Th. F.* 8-9.

212. Transmission lines: Lectures and recitations upon line inductance and capacity, the application of hyperbolic functions to the calculation of the regulation of long transmission lines, effect of harmonics in E. M. F. waves, surges, etc. Stresses in conductors, line construction and related topics. *Five hours, third term. M. T. W. Th. F.* 8-9.

213. Laboratory work: Operation of alternating current machinery, determination of data for calculation of alternator regulation, direct determination of regulation, efficiency tests, transformer connections, transformer testing for efficiency and regulation, induction motor testing, circle diagram. Brake tests, single phase induction motors, synchronous motors, V-curves, rotaries, synchronizing, etc. The work during the third term consists chiefly in the determination of data for the student's thesis. *Four hours, entire session.*

214. Electric railway engineering: A detailed study of the subject of street and interurban electric railway service covering train resistance, grades, curves, line and track, car and power plant equipment, both direct and alternating currents, sub-station, single phase equipment, and related topics.

The course consists of recitations and lectures with constant

reference to current numbers of various technical journals. *Two hours per week, one term. T. Th.* 10-11.

215. Telephone engineering: History and development of telephone types, designs of telephone parts, sub-station equipment, magneto and common battery switch boards, exchange equipment, telephone power plants, over head and under ground circuits, protectors, coin collectors and meters, party lines, private branch exchanges, first and intercommunicating systems, trunking, and toll boards. *Two hours, first and second terms. T. Th.* 10-11.

216. Telephone laboratory: Details of telephone construction, association of parts, assembly of switch board parts, storage batteries, tests for location of faults in cables and lines, capacity and insulation tests, details of common battery and magneto switch boards, trunking schemes, etc. *Two hours, first and second terms. T. Th.* 2-4.

217. Electrical engineering: For senior mechanical engineering students. Direct current motors and generators, street railways, circuits, alternating currents, and alternating current machinery. This course is less detailed than the courses for electrical engineering students, but aims to cover the field in a more generalized manner. *Three hours, first term. M. W. F.* 10-11.

218. Laboratory work for seniors in mechanical engineering. This course is given in connection with course 217, and gives practice in the operation and testing of electrical machinery of various kinds. *Four hours, first term.*

219. Contracts and specifications: For seniors in the courses of electrical engineering and mechanical engineering. Lectures and recitations upon engineering specifications and the elements of the laws of contracts. Considerable time is devoted to exercises in writing specifications covering machinery and engineering projects. These specifications are read to the class and the students are required to offer criticism on each set. *Two hours, third term. T. Th.* 10-11.

220. Power plant: For students taking the special course in applied electricity. The purpose is to familiarize the student with the operation of engines, pumps, generators, motors, switch board appliances and boilers. All students in this course are expected to work under the power house engineer. *Four hours, entire session.*

WIRELESS TELEGRAPHY

221. In response to a considerable demand it has been decided to offer a special course in wireless telegraphy. The practice work in this subject will be under the charge of a licensed wireless operator. Every effort will be made to offer

to students opportunities to become familiar with the setting up, installation, and testing of wireless apparatus, as well as becoming expert in sending and receiving.

Wireless messages are constantly being picked up with the wireless station, these messages coming from ships at sea, and from various wireless stations along the Atlantic Coast.

The requirements for entrance to this course will be similar to those for entrance upon the two-year course in applied electricity.

The course of study is the same as that of the first year in the two-year course in applied electricity, with the exception that four hours of wireless telegraph study and practice will be substituted for four hours power house work.

MECHANICAL ENGINEERING.

PROFESSOR WILMORE
ASSISTANT PROFESSOR HIXON
INSTRUCTOR STOKES
ASSISTANT HALE
LABORATORY ASSISTANT DUGGAR
LABORATORY ASSISTANT HAMILTON
LABORATORY ASSISTANT LEVIE
LABORATORY ASSISTANT ROSS
LABORATORY ASSISTANT SELMAN

The following courses are offered in this department:

FRESHMAN CLASS.

Students who have credit for a course satisfactorily completed in an accredited high school will be assigned to other work.

351. Shop work—carpentry: The lessons include instruction in the nature and use of tools; instruction and practice in shop drawing; elementary work with the plane, saw, chisel; the construction of different kinds of joints, timber splices, cross joints, mortise and tenon, mitre and frame work, and dove tail work, comprising different joints used in cabinet work, and examples of framing roof trusses. Students who have had previous experience in the use of tools or who show a special proficiency, are given work of an advanced character. *Six hours, one term.*

352. Shop work—wood turning: The instruction includes the nature and use of the lathe and tools, and lessons comprise plain, straight turning, caliper work to different diameters and lengths, simple and compound curves, screw plates and chuck work, hollow and spherical turning. *Six hours, one term.*

353. Shop work—pattern making: The course includes work in whole and split patterns in wood for solid and cored castings and core boxes for producing the necessary cores. The characteristics of the different kind of timbers used for patterns are studied, and attention is called to allowances necessary for shrinkage and draft. The patterns are intended to be used by the students in their subsequent work in the foundry. *Six hours, one term.*

SOPHOMORE CLASS.

312. Applied mechanics: Required of students in engineering courses. The fundamental laws of mechanical science are studied while special attention is given to the practical application of these principles to engineering work. *Three hours, second and third terms. M. W. F.* 8-9.

361. Shop work—forging: A text-book is used from which is learned something of the characteristics of the metals and the best methods for working them. The lessons are so arranged as to make the student familiar with the handling of the tools and the successive steps in working metals by hand. Exercises in drawing, upsetting and bending, cutting, punching, and welding by various methods, are given, together with a course in steel forging, including hardening, tempering, and case hardening. *Four hours, first term.*

362. Shop work—foundry: Required of all students except those taking agriculture. The work for the most part consists of small articles, such as light machine parts and stock pieces used for the execise work in the machine shop. A sufficient variety is introduced for the student to acquire a good general knowledge of the usual methods and appliances used in light foundry work. Most of the work is in green sand and two part flasks, but some core work and more complicated work is introduced to illustrate the processes, as well as to furnish the castings for the advanced work in the machine shop. Instruction is given in operating the cupola, and from time to time lectures and recitations are held on the metallurgy of the metals used in the industrial arts. *Four hours, second term, and five hours third term.*

JUNIOR CLASS.

321. Practical mechanics: Required of students who take machine shop work. The instruction consists of recitations and lectures on general machine shop work. The construction, use, and limitations of the various machine tools, the forms of cutting tools and methods of grinding them, and the form and use of jigs and gauges, are studied, together with instruction in machine management, and time and cost keeping. *One hour, entire session. Th.* 10-11.

322. Strength of materials: Required of students in the engineering courses. The properties and characteristics of the materials of engineering construction are studied, and the development of the methods of calculating their strength under different conditions of stress is explained. Many problems involving the strength of beams, girders, columns, and shafts are worked out. *Three hours, first term. M. W. Th.* 8-9.

323. Engines and boilers: Required of juniors in civil engineering, architecture, architectural engineering, and of the first year students in the course in applied electricity. An elementary descriptive course in which attention is called to the different types of engines and boilers, and methods of setting, valve gears and valve setting, piping systems and auxiliary apparatus for power plants. *Three hours, first term. M. W. F.* 10-11.

324. Gas engines: Required of seniors in chemical engineering, juniors in civil engineering, architectural engineering, and the first year students in the two-year course in applied electricity. A descriptive course in gas, gasoline and oil engines; different types, different cycles, carburetion, ignition, troubles and remedies. *Three hours, second term. M. W. F.* 10-11.

325. Transmission of power: Required of juniors in civil engineering, architectural engineering, and of the first year students in the two-year course in applied electricity. Shafting, pulleys, bearings, belting, gearing, aligning of shafting, calculation of pulley and gear sizes, power of belts, lubrication and lubricating systems. *Three hours, third term. M. W. F.* 10-11.

371. Shop work: Required of students in the courses of mechanical engineering and electrical engineering. This work is divided into two parts:

(a) A course of chipping and filing: The lessons comprise work on cast iron and wrought iron, and consist in chipping to line on flat and curved surfaces, key seating, filing and finishing to line, surface filing, slotting, pin and screw filing, and surface finishing with scraper.

(b) A course in machine work: The materials worked on include cast iron, wrought iron, steel and brass. Exercises are given in turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling in the lathe and drill press, reaming, boring, screw cutting in lathe and with taps and dies. Practice is given in working the planer, shaper, and milling machine. In the last part of the year some work in tool making is given, such as making taps, reamers, and milling cutters. Some sort of construction or repair work for the department is always on the shop floor and students who are well advanced in this work have opportunity to gain

railway structures. *Two hours recitations and two hours field and office practice, second term. T. Th.* 8-9.

JUNIOR CLASS.

107. Roads and pavements: A course of lectures and recitations covering economic principles involved in road improvement; analysis of resistance to traction; location, grades, and drainage of new roads; relocation and improvement of existing roads; construction of earth, gravel, macadam, concrete, brick, and bituminous roads, with study of properties of the various materials used in road construction, the methods employed in testing them, and the best specifications for constructing roads with the several materials; street plans of cities and towns; width and grades of streets; curbs and gutters; construction of various kinds of street pavements; storm drainage systems for cities; and construction of sidewalks. *Five hours, second and third terms. M. T. W. Th. F.* 9-10.

108. Road materials laboratory: The study and testing of various materials used in the construction of roads and pavements. The purpose of the course is to give the student an opportunity of becoming familiar with the physical properties, relative merits, and methods of testing the various materials. *Four hours, second term. T. Th.* 2-4.

109. Road and street improvement: A practical field and office course in making surveys, plans, and estimates for road and street improvements. *Four hours, third term. T. Th.* 2-4.

111. Graphic Statics: A course of lectures and drafting room exercises covering fundamental principles of equilibrium; composition and resolution of forces; the equilibrium polygon; graphical determination of stresses in trusses and framed structures, bending moment and shear in beams; center of gravity of given sections; moment of inertia. *Lectures two hours, drafting four hours, third term. M. W. F.* 2-4.

112. Structural drafting: The purpose of this course is to acquaint the student with the details of structural steel work, to train him in the neat and accurate execution of drawings, and to teach him in a practical way to solve some of the simpler problems in structural mechanics. *Six hours, first and second terms. M. W. F.* 2-4.

SENIOR CLASS.

113. Theory of structures: The purpose of this course is to teach the fundamental principles underlying the design of bridges, roofs, and other framed structures of metal and timber. The discussions cover determination of outer and inner forces acting on the structure; concentrated live load systems; design of beams, plate girders, simple trusses, bridge trusses with

secondary web systems, lateral and portal bracing, transverse bents, viaduct towers, cantilever bridges, three-hinged arches. *Five hours, first term. M. T. W. Th. F.* 10-11.

114. Structural design: This is a drafting room course in the practice of bridge and structural design and is the complement of course 113. Complete designs are worked out for a number of structures. *Nine hours, first and third terms. M. W. F.* 2-5.

115. Railroad engineering: The discussions cover the inception, promotion, and organization of railroad projects, organization and construction; the duties of the engineer; alignment and grades; rails and rail fastenings; cross ties; ballast and roadbed; culverts; bridges, and minor structures; turnouts, sidetracks and yards; terminals; elevation of outer rail; signalling; the locomotive and its work; the locomotive and grade problems; railroad expenditures; relation of operating expenses to number of trains; effect of rise and fall, distance, and curvature to train mile costs; railroad location, construction, and betterment surveys. *Three hours, first term. M. W. F.* 12-1.

116. Theoretical hydraulics: The discussions cover fluid pressures; equilibrium of floating bodies; fundamental principles of hydro-mechanics; methods of measuring the flow of water; Pitot tube; Venturi meter; orifices; tubes; sluices; weirs; nozzles; fire hose; flow in open channels, sewers, conduits, etc.; flow in pipes; dynamic action of flowing water; impulse wheels; turbines of various types; centrifugal pumps. *Five hours, second term. M. T. W. Th. F.* 10-11.

117. Practical hydraulics: This course is the complement of course 116, and its purpose is to bring the student into close touch with practical hydraulics. The work includes the determination of coefficients of orifices, tubes, and nozzles, determining loss of head in pipes and fire hose; measurement of water by weirs and meters; testing meters and pumps; gauging streams with current meter; visits of inspection to hydro-electric power plants under construction and in operation and reports on same. *Three hours, third term.*

118. Concrete and masonry construction: Discussions cover mathematical theories underlying the design of reinforced concrete beams, columns, slabs and arches; cements, limes and mortars; methods of mixing and placing plain and reinforced concrete; classification and properties of building stones; definition and construction of various classes of stone masonry; manufacture of brick; brick work; stone and brick arches; retaining walls; piers and abutments; shallow foundations; coffer dams; crib foundations; pile foundations; pneumatic

caissons; the freezing process; cylinder piers. *Three hours, second and third terms. M. W. F.* 12-1.

119. Sanitary engineering: The discussions cover the history of sanitary science; sanitary measures necessary for the prevention of zymotic diseases; the engineer's part in the campaign for the prevention of disease; the sources of water supply; its collection, purification, and distribution; sewerage, and sewerage design; sewage disposal; construction of sewers; pumping of sewage; sewage treatment plant; sewage farms; collection and disposal of garbage and rubbish; street cleaning. *Five hours, third term. M. T. W. Th. F.* 10-11.

120. Thesis: Each candidate for a degree in civil engineering is required to prepare a thesis upon some engineering subject which he may select. It must be the record of original investigation of some engineering subject or an original design of some engineering structure or project. The applicant for a degree shall file a written announcement of his subject with the professor of civil engineering not later than October 1st of his senior year; and the thesis shall be completed and submitted for approval not later than May 1st. During the first term the candidate shall devote not less than four hours a week to reading and collecting data for his thesis; during the second term he shall devote not less than nine hours a week and during the third term until May 1st not less than three hours a week to work on the thesis. He shall submit on Monday morning of each week a written statement of the time he has devoted to thesis work during the preceding week.

The student is also required to prepare and hand in one report or paper during first term and one during second term on subject of thesis or some allied subject approved by the professor.

SUMMER CAMP AND SCHOOL OF SURVEYING

105. Practical work in plane and higher surveying supplementing the instruction given in courses 102 and 103: This work is given at the summer camp immediately after commencement, between freshman and sophomore years. The purpose of this course is to give the student uninterrupted practice in the solution of practical problems in surveying similar to those which he will meet early in his career as an engineer; and the course is in line with the policy of the institute to combine theory and practice in all its branches of technical instruction. Students in this course are required to make notes of all the work done by the party to which he is assigned and to compute and plot all surveys made by his party. The parties will be made as small as the conditions to the work will permit so as to give each student the greatest possible amount of practice with the instruments. This course is required of all students

who are candidates for graduation in civil or mining engineering, and requires *forty-eight hours per week for four weeks.*

110. Practical work in railway, highway, and hydrographic surveying: This course is also given in the summer camp, and is required of all students who are candidates for graduation in civil or mining engineering, and will be taken between sophomore and junior years. The work includes the preliminary location and construction, surveys for a short line railroad, (about 2 miles), with maps, profiles, and estimates for same; all surveys, maps, profiles and estimates for a short line of highway, (about two miles); surveys for a dam and lake formed thereby; also gauging of stream flow with current meter. The time required for this course is *four weeks, forty-eight hours per week.*

The Institute furnishes tents, cots, camp stools, and all equipment of mess tents. The student will furnish his own bedding, soap and towels. A charge of $18.00, payable in advance, will be made for each course and will be applied to payment of the expense of the camp.

GRADUATE STUDENTS.

121. Graduate engineering course: This course requires three hours a week to be devoted to recitations and five hours a week to practical work in field or drafting room, throughout the session. The subjects may be varied to fit the needs of the students taking the course, but will be chosen from the following: Reinforced concrete; bridge design; sewerage and water supply; specifications and contracts.

122. Thesis: Graduate students applying for the degree of civil engineer will be required to prepare and present a thesis, the regulations governing thesis work being the same as those prescribed for seniors.

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN
PROFESSOR HILL
LABORATORY ASSISTANT STEWART

JUNIOR CLASS

201. Elementary theory of electricity and magnetism: A detailed study of the fundamental phenomena and laws of the subject. *Three hours, first term. T. W. Th.* 8-9.

202. Direct current machinery: Lectures and recitations on the principles of design, construction, installation, and operation of direct current generators and motors. This course treats in detail of the selection of machinery for given conditions, performance guarantees, acceptance tests for heating,

regulation, efficiencies, etc., parallel running troubles and remedies and repairs. A large number of carefully selected problems are assigned for solution and every effort is made to have the course cover not only the fundamental principles but also the broader engineering problems connected with the choice and use of this class of machinery. *Three hours, second term. T. W. Th.* 9-10.

203. Central station appliances and distribution for lighting and power service by direct currents: This course treats in detail of switch boards and appliances, calculation of circuits of various kinds, arc and incandescent lighting, metering, systems of charging for service, economics of generating plants. *Three hours, third term. T. W. Th.* 9-10.

204. Elementary theory of electricity and magnetism: For non-electrical engineering students. This course is similar to course 201, though not so detailed in treatment. *Two hours, first and second terms. T. Th.* 9-10.

204a. The construction and operation of both direct and alternating current machines; tests for efficiency, regulation and heating; the generation and distribution of electric power. In this course, it is intended to cover the application of electricity to the operation of machinery. For non-electrical students. *Two hours, third term. T. Th.* 9-10.

205. Electrical measurements and tests: For students in electrical engineering and mechanical engineering. The course consists of lectures and recitations upon the measurements of current, voltage, resistance, capacities, magnetic measurements, stray power, brake tests, heat runs, and related subjects. *One hour, entire session. M.* 9-10.

206. Laboratory work: For students in electrical engineering and mechanical engineering. The course consists of galvanometer work, resistance measurements of various kinds, magnetic measurements and various tests. *Four hours, first term.*

207. Laboratory work: For students in electrical engineering and mechanical engineering. The second term is devoted to the operation of direct current motors and dynamos, characteristics of direct current machinery, methods of adjusting, compounding, etc. *Four hours, second term.*

208. Laboratory work: For students in electrical engineering and mechanical engineering. Efficiency tests, location of troubles on machine and line, switch boards and appliances and general experience in the operation of a direct current station, are given. *Four hours, third term.*

209. Wiring and illumination. This course is intended to give a working knowledge of the laws of illuminaton and to train students in the writing of wiring specifications. The

work in wiring will cover the laws for the calculation of wires for lighting and power circuits, costs of wiring, and insurance rules governing the installations of wires. Problems will be worked in class covering the design of lighting schemes for special buildings. *Two hours, third term.*

SENIOR CLASS

210. Theory of alternating currents: Lectures, recitations and problems upon the phenomena of alternating current circuits, inductances, etc. The course is introductory to the subject of alternating current machinery, and in order to take it, students must have a fair working knowledge of differential and integral calculus and vector algebra. *Five hours, first term. M. T. W. Th. F.* 8-9.

211. Alternating current machinery: Lectures and recitations upon alternating current generators, calculation of alternator voltage, regulation by various methods, parallel running, transformers, induction motors, single phase commutator motors, synchronous motors, rotaries, etc.; harmonic analysis of wave forms, the expression of the same in Fourier series and calculation of the current produced in various circuits.

The course is somewhat advanced and in order to take it satisfactorily students must have a good knowledge of the mathematical theory of alternating currents. *Five hours, second term. M. T. W. Th. F.* 8-9.

212. Transmission lines: Lectures and recitations upon line inductance and capacity, the application of hyperbolic functions to the calculation of the regulation of long transmission lines, effect of harmonics in E. M. F. waves, surges, etc. Stresses in conductors, line construction and related topics. *Five hours, third term. M. T. W. Th. F.* 8-9.

213. Laboratory work: Operation of alternating current machinery, determination of data for calculation of alternator regulation, direct determination of regulation, efficiency tests, transformer connections, transformer testing for efficiency and regulation, induction motor testing, circle diagram. Brake tests, single phase induction motors, synchronous motors, V-curves, rotaries, synchronizing, etc. The work during the third term consists chiefly in the determination of data for the student's thesis. *Four hours, entire session.*

214. Electric railway engineering: A detailed study of the subject of street and interurban electric railway service covering train resistance, grades, curves, line and track, car and power plant equipment, both direct and alternating currents, sub-station, single phase equipment, and related topics.

The course consists of recitations and lectures with constant

reference to current numbers of various technical journals. *Two hours per week, one term. T. Th.* 10-11.

215. Telephone engineering: History and development of telephone types, designs of telephone parts, sub-station equipment, magneto and common battery switch boards, exchange equipment, telephone power plants, over head and under ground circuits, protectors, coin collectors and meters, party lines, private branch exchanges, first and intercommunicating systems, trunking, and toll boards. *Two hours, first and second terms. T. Th.* 10-11.

216. Telephone laboratory: Details of telephone construction, association of parts, assembly of switch board parts, storage batteries, tests for location of faults in cables and lines, capacity and insulation tests, details of common battery and magneto switch boards, trunking schemes, etc. *Two hours, first and second terms. T. Th.* 2-4.

217. Electrical engineering: For senior mechanical engineering students. Direct current motors and generators, street railways, circuits, alternating currents, and alternating current machinery. This course is less detailed than the courses for electrical engineering students, but aims to cover the field in a more generalized manner. *Three hours, first term. M. W. F.* 10-11.

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WIRELESS TELEGRAPHY

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to students opportunities to become familiar with the setting up, installation, and testing of wireless apparatus, as well as becoming expert in sending and receiving.

Wireless messages are constantly being picked up with the wireless station, these messages coming from ships at sea, and from various wireless stations along the Atlantic Coast.

The requirements for entrance to this course will be similar to those for entrance upon the two-year course in applied electricity.

The course of study is the same as that of the first year in the two-year course in applied electricity, with the exception that four hours of wireless telegraph study and practice will be substituted for four hours power house work.

MECHANICAL ENGINEERING.

PROFESSOR WILMORE
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JUNIOR CLASS.

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(a) A course of chipping and filing: The lessons comprise work on cast iron and wrought iron, and consist in chipping to line on flat and curved surfaces, key seating, filing and finishing to line, surface filing, slotting, pin and screw filing, and surface finishing with scraper.

(b) A course in machine work: The materials worked on include cast iron, wrought iron, steel and brass. Exercises are given in turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling in the lathe and drill press, reaming, boring, screw cutting in lathe and with taps and dies. Practice is given in working the planer, shaper, and milling machine. In the last part of the year some work in tool making is given, such as making taps, reamers, and milling cutters. Some sort of construction or repair work for the department is always on the shop floor and students who are well advanced in this work have opportunity to gain

additional practice and experience by assisting with this. *Six hours, entire session.*

374. Shop work: Required of students in the course of mining engineering and elective for juniors in the course of civil engineering. The work includes course (a) and (b) as described in course 371 just preceding, except the amount of work required is less in proportion to the time consumed.

All shop work is done from blue prints and blackboard sketches. For the preliminary exercise work, special instruction sheets are prepared and given out to each student with stock for the exercises. These sheets explain in detail each step in the process of producing the exercise, and are intended to supplement individual instruction of the instructor. In the construction work it is the purpose to select some simple machine and build two or more of them on the interchangeable system. Jigs and templates are built to accomplish this result as far as possible. A system of timekeeping is in force in the shop. At the end of the week each student makes out his time card, describing the work he has done during the week, and giving the number of hours spent on each job. *Four hours, entire session.*

377. Laboratory: Required of juniors in the course of mechanical engineering and electrical engineering. The work will consist in the adjustment and calibration of instruments used in engineering work, and the adjustment and operation of gas, gasoline and steam engines. Tests will be made to determine the efficiency of mechanisms such as hoists, jack screws, gearing, belts and other transmission devices, together with some work in valve setting and power measurements of steam engine. Complete and accurate written reports of each experiments are required. *Two hours, third term.*

378. Laboratory: Required of second year students in the two-year course in applied electricity. The work will consist of the calibration of instruments, indicator work, valve setting, fuel and furnace gas analysis, and lubricant testing. *Three hours, second term.*

SENIOR CLASS.

331. Thermodynamics: Required of students in the courses of mechanical engineering and electrical engineering. This course includes a study of the fundamental principles underlying the transformation of heat into work. The so-called perfect gases are first studied, and later the applications to the various vapors used in commercial work. The cycles and efficiencies of steam engines, internal combustion engines, hot air engines, air compressors, and refrigerating machines are studied. Instruction is given in indicator practice and the in-

terpretation and working up of indicator diagrams. *Five hours, first term. M. T. W. Th. F.* 12-1.

332. Power plant engineering: Required of students in the courses of mechanical engineering and electrical engineering. A study is made of the practical applications of power plant machinery. The different elements are considered and the efficiencies of different combinations discussed. Problems are worked involving the designing of plants for a specific service, including estimates of cost and operating expense. Extensive files of manufacturers' catalogs are kept and technical papers and magazines are freely consulted. *Five hours, second and third terms. M. T. W. Th. F.* 12-1.

333. Hydraulic power: Required of seniors in mechanical engineering and elective for seniors in electrical engineering. The elementary principles of mechanics of fluids are studied. This is followed by a discussion of the theory of hydraulic turbines and pumps, including their design, installation, and operation. *Five hours, second term. M. T. W. Th. F.* 10-11.

334. Heating and ventilating: The different methods of heating and ventilating buildings are treated. A study is made of the relative efficiency of hot water, steam and warm air as mediums for heating different kinds of buildings, and special attention is given to the design and operations of healthful heating systems for residences. *Two hours, first term. T. Th.* 8-9.

336. Refrigeration. Required of students in the course in mechanical engineering. The theory of the refrigeration process is studied together with its applications to commercial plants. The advantages of the various mediums, as ammonia, carbon dioxide and others are discussed, as well as methods of insulation and plant arrangement. *Two hours, second and third terms. T. Th.* 8-9.

381. Laboratory: Required of students in mechanical engineering and electrical engineering. This work includes fuel analysis and heat determination, flue gas analysis and the study of combustion, oil and lubricant testing, and valve setting and indicator analysis. *Four hours, first term.*

382. Laboratory: Required of students in mechanical engineering and civil engineering and optional in electrical engineering. The course includes work in testing the strength of materials, as iron, steel, wood, and cement in tension, compression, and transverse loading, and the calibration of weirs, nozzles, and meters, a study of the flow of water in pipes, and the testing of hydraulic motors and pumps. *Four hours, second term.*

383. Laboratory: Required of students in mechanical engi-

neering and electrical engineering. The work includes tests of engines, boilers, pumps, gas and gasoline engines, complete power plants, and when opportunity offers, tests of commercial power plants. *Two hours, third term.*

384. Thesis: Each applicant for a degree is required to prepare and hand in a thesis. This thesis may consist of a design, a study of some engineering problem involving a series of tests, or a study involving the collection and analysis of data and material on some engineering subject with a statement of definite conclusions derived therefrom. Preliminary work shall begin with the first term and weekly reports of progress made. The thesis proper shall be handed in to the professor in charge not later than May 1st. The student shall prepare and hand in two papers or reports on some portion of his thesis or some allied subject, approved by the professor, one during the first term and one during the second term. Credit as laboratory work. *Two hours, first and second terms, four hours, third term.*

GRADUATE STUDENTS.

391. Laboratory: This course is arranged to suit the work being carried by the student, and the hours are adjusted to suit their available time.

341. Steam turbines: The theory, design and structural details of the different types of modern steam turbines are studied, and complete designs are worked out. *Three hours. first term. M. W. F.* 8-9.

342. Power plant design and economics: The economics of power plant design, the relation of the different elements of a power plant to each other, and the conditions of maximum efficiency are studied. Plants are designed to give the highest efficiency under specified conditions, and actual plants are studied to discover, if possible, sources of additional economy in operation. *Three hours, third term. M. W. F.* 8-9.

343. Works management: Methods of cost keeping, systems of organizing and paying labor, depreciation of plant, accounting and business organization are studied. Many problems are solved, including the layout of buildings and machinery for manufacturing plants. *Three hours, third term. M. W. F.* 8-9.

SPECIAL STUDENTS.

Special students who have the necessary preparation may be admitted to any of the classes in this department. Students who, for any reason, are not able to remain in college to complete the full course, but who wish some training in drawing and shop practice, are permitted to become irregular students. This plan may be advantageous to young men who contemplate entering the mechanical trades either preceding or following

the apprenticeship period. In many cases this work has been accepted as equivalent to a part of the apprenticeship period and the time of the latter shortened thereby. The drawing and mathematics are invaluable tools in any of the trades, and work in the different shops enables the apprentice to become familiar with the principles of the trades allied to his own.

MINING ENGINEERING AND GEOLOGY.

PROFESSOR BROWN.

JUNIOR CLASS.

401. Mine surveying: All general surveying as given by the civil engineering department previous to the junor year is required for this course. The work covers general surveying methods as applied to conditions prevailing at mining properties, both underground and at the surface. The student is required to work out practical problems that he will be likely to meet in actual practice. *Five hours, first half of first term. Daily* 9-10.

Text-book: Durham's Mine Surveying.

402. Coal mining: For those who have taken course 401 and its prerequisites. This course includes the following:

Examination of coal properties; drifts, slopes and shafts; methods of working; plans of mines; coal-cutting machinery; trackwork, haulage, mine ventilation; coal washing; coking in beehive ovens; by-product coking. *Five hours from first mid-term to end of session. Daily* 9-10.

403. Junior drafting: The course includes freehand lettering, mapping, detailed drawings to scale of various structures relating to mines, design of mine cars, design of ventilating fans. *Five hours, entire session. W.* 2-4, *F.* 2-5.

404. Summer course: The summer field work will deal with graphite mining and milling, mica and pyrite mining in Clay County, marble quarrying and milling at Sylacauga;brown ore mining in Shelby County; coal mining, washing and coking, iron ore mining and mine rescue work at Birmingham. Surveys and reports will be required. *Four weeks, immediately following commencement, between junior and senior years.*

SENIOR CLASS.

411. Mining: Modes of occurrence and origin of the various ores and economically valuable mineral deposits. Prospecting and examination of mineral properties, including boring by different methods. Methods of opening up mineral deposits, breaking ground, supporting excavations, developing and working coal and metalliferous deposits, haulage, hoisting, drainage,

ventilation, lighting and provisions for ascent and descent. The last term is devoted to the design of mine structures such as head frames (timber and steel), coal tipples, mine buildings. *Three hours, entire session. M. W. F.* 12-1.

412. Drafting. Map work consisting of plotting of notes taken on summer trip between junior and senior years; drafting accompanying design of mine structures; original work in connection with thesis. *Four hours, entire session. W. F.* 2-4.

413. Laboratory course: For seniors in mining engineering and chemistry and metallurgy. The work includes crushing, sampling, concentration, stampmilling, amalgamation, and cyaniding. *Three hours, entire session. S.* 10-1.

Text-books: Coal and Metal Miner's Pocket Book, and International Text Books.

421. Graduate course: This course is offered to those who desire to pursue the subjects related to mining beyond the scope to which the two years' course limits them. The work will be arranged to meet the requirements of those desiring to take it.

GEOLOGY.

JUNIOR CLASS.

431. Crystallography: For students in the courses in civil engineering, mining engineering, and chemistry and metallurgy. A thorough study is made of the crystal systems with the aid of a full set of crystal models and natural crystals. Special emphasis is laid upon the more practical features which will be of service in further mineralogical work. *Four hours, first mid-term. Tu. Th.* 2-4.

Text-book: Bayley's Elementary Crystallography.

432. Mineralogy: For juniors in the courses of civil engineering, mining engineering, and chemistry and metallurgy. The course consists of a thorough study of a large number of minerals from the standpoint of their physical characteristics. A good type collection of minerals is kept in the laboratory for comparison. An effort is made to have the students become familiar with economically important ores and non-metallic minerals, and the common rock-forming minerals so that he can identify them at sight by the application of a few simple tests. *Four hours, one and one-half terms. Tu. Th.* 2-4.

Text-book: Butler's Handbook of Minerals.

433. Lithology: For those who have satisfactorily completed course 432. This deals with the combination of minerals in the make-up of rocks, and aims to bring out structure, texture, crystallization and mineralogical composition sufficiently to enable the student to recognize the commoner rocks in the sedimentary, igneous and metamorphic classes. *Four hours, third term. Tu. Th.* 2-4.

Text-book: Kemp's Handbook of Rocks.

434. Agricultural Geology: For juniors in agriculture. This course deals with the operation and results of geological processes as follows: weathering and rock disintegration, work of winds, work of underground waters, rivers, river deposits, river valley cycle, glaciers and glaciation, lakes and swamps, shore lines, plains and plateaus, movements of ocean waters, characteristics of the atmosphere, light and warmth in the atmosphere, rain and other forms of water, winds, storms and climate. *Four hours, second term. M. Tu. Th. F.* 10-11.

Textbook: Tarr & Martin's College Physiography.

435. General geology: See course 441.

436. Engineering geology: The rock forming minerals; the general characters, mode of occurrence and origin of rocks; structural features and metamorphism of rocks; rock-weathering; surface waters; underground waters; landslides and their effects; wave action and shore currents; lakes, their origin, and relation to engineering work; glacial deposits, their origin, structure and economic bearing; building stone; limes, cement and plaster; clay and clay products; coals; petroleum, natural gas and other hydrocarbons; road foundations and road materials; ore deposits. Required of juniors in architectural engineering, special students in mining engineering, and elective for seniors in civil engineering. *Two hours, entire session. Tu. Th.* 12-1.

SENIOR CLASS.

441. General geology. For juniors in the courses of mining engineering, and chemistry and metallurgy, and for seniors in the courses of civil engineering and general course. The course covers dynamic geology, structural geology, geomorphology, and historical geology in the order named. The lectures and recitations are supplemented by laboratory instruction and geological excursions. *Two hours, entire session. Tu. Th.* 8-9.

Text-book: Chamberlain and Salisbury's College Geology.

442. Economic geology, non-metallic minerals: For seniors in the courses in mining engineering, and chemistry and metallurgy. The course is presented by lectures and recitations and includes the study of modes of occurrence, distribution, origin and uses of coal, petroleum, limestone, salines, gypsums, fertilizers, abrasives, minor non-metallic minerals and mineral waters. *Two hours, first term. M. W.* 8-9.

Text-book: Reiss' Economic Geology of the United States. (Revised.)

443. Economic geology, metallic minerals: For students who have taken course 442. The work includes a study of the ores of iron, copper, lead, zinc, gold, silver, silver-lead, aluminum,

manganese, mercury, and the minor metals. *Two hours, third term. M. W.* 8-9.

Text-book: Reiss' Economic Geology of the United States. (Revised.)

444. Methods of teaching physical geography: Especially adapted to the secondary schools of the State. In the course in general geology will be found much that is especially applicable to physical geography. It takes up a study of subterranean and surface agencies both as to their destructive and constructive processes. The results of these processes are then taken up in a study of the topography of the surface of the earth and under the following heads: The geographic cycle; land sculpture; topography as determined by faults and joints; adjustment of rivers; sea coasts; mountain ranges. Students desiring extra work in this subject may arrange for a three-hour course. *Two hours a week, first and second terms.*

MACHINE DESIGN AND MECHANICAL DRAWING.

PROFESSOR FULLAN.
ASSISTANT PROFESSOR THOMAS
ASSISTANT DOUGLAS.

The following courses are offered in this department:

FRESHMAN CLASS.

601. Mechanical drawing: This course in drawing is of general educational value, and is required of students in all courses. The object of the course is to train the mind through the eye and hand with the applications of geometry to drawing. Accuracy, neatness, and the correct use and the care of instruments, are given special attention.

The work is given in the following order:

(1) Freehand drawing and freehand lettering.

(2) Linear drawing—geometrical construction.

(3) Orthographic projection, sections and intersections.

(4) Development of surfaces and the construction of models.

(5) Isometric, Cavalier, and dimetric projections.

(6) Study of working drawings, making tracings and blue prints.

(7) During the third term, in lieu of (5) above, a course in agricultural drafting is given freshman students in agriculture, and is arranged for the purpose of assisting them to a knowledge of the principles of mechanical drawing and their application to the farm. The course consists of drawings in the following lines of work:

(a) Farm maps: Topographical drawing; topographical conventions; maps and plots; layout for farm buildings, outhouses and grounds.

(b) Building construction: Plan, elevation, and section; details, framing joints; building materials, layout of plumbing and water supply on the farm; plans for barns, hayracks and roof construction; and framing for houses, etc.

(c) Concrete forms: Simple forms; steps and stair forms; wall forms; layout of forms for silo building; watering troughs and fence posts.

(8) During the last half of the year, in lieu of (5) and (6), a course in hand work correlated with drawing is offered to young women. The course is arranged with a view of giving training in vocational and industrial lines and consists of a short course in the elements of industrial education as follows:

(a) Paper cutting and folding: The construction of boxes, baskets and booklets.

(b) Basketry: Several baskets of native materials from pine needles and corn husks.

(c) Print block and stencils: The design of print blocks, and the cutting of stencils for decoration.

(d) Wood whittling: The making of articles of use from thin wood with simple tools.

(e) Clay modelling: Elementary clay modelling with tools made by the student and including the treatment of geometrical, botanical, animal and commercial forms; reproduction of the designs in basketry is included in the course.

(f) Art metal work: Articles of copper, brass and iron are wrought by the student with a few simple tools.

Freehand drawing of geometrical subjects is given early in the course. It provides training of a certain definite nature by developing close observation and accuracy in representing the forms of models used in the work. Freehand lettering of standard practice is strongly emphasized throughout the entire course. The construction and application of Roman and Gothic capitals and small letters to working drawings and the arrangement and design of formal titles are treated in this division.

Under the head of linear drawing, special attention is given to the proper use and care of instruments. The most useful of the geometrical constructions are worked out in pencil and afterwards carefully inked.

Orthographic projection with sections and intersections is given in the beginning of the second term, and is a prerequisite to course 602 in descriptive geometry. Developments of surfaces are made, and paper models of the objects are constructed from these developments. The construction of these models

has the property of more firmly fixing the principles involved in the preceding division in the mind of the student and is given special attention.

In the third term pictorial representation of objects are given by means of single-view projections, isometric, cavalier, and dimetric. The paper models made by the pupil are now used for subjects. A number of working drawings of familiar objects are required in the last part of the year. Penciled drawings to scale, tracings and blue prints of these objects are made by each member of the class. *Five hours, entire session. M. T. W. Th. F.* 12-1.

SOPHOMORE CLASS.

602. Descriptive geometry: Required of all students preparing for engineering and architectural courses. The work is given by lectures, written recitations and drafting room instruction. In this course theory and practice are combined with the purpose of training the student in the graphical expression of ideas. The instruction includes problems relating to the point, straight line, and plane; tangents and normals; to cylindrical, conical, and warped surfaces, to sections, intersections, and developments; to shades, shadows, and perspective; and is intended to develop in the mind of the student a clear concept of magnitudes in space. The lectures and written recitations are to impart principles and to permit the instructor to meet the entire class, and, with diagrams and models, supplement the work of the text. The drawings, two hours per week, consists of plates of problems, which are selected from the text-book and other sources. *Four hours, entire session. T.* 9-10, *Th.* 11-12; *Drawing two hours. M. T. W.* 2-4.

JUNIOR CLASS.

604. Kinematics of machinery: Required in the courses of electrical engineering and mechanical engineering. Under this head machines are analyzed and their elementary combinations of mechanism are studied. Motions and velocities, instantaneous centers, kinematic chains, velocity diagrams, parallel and straight line motion mechanisms, are given early in this course. The communication by means of gear wheels, belts, cams, screws, and link work, and the different ways of obtaining definite velocity ratios and definite changes of velocities in machine parts are investigated. Problems designing quick motions, trains of mechanisms for various purposes, and gear trains are treated. Illustrated lectures with the lantern, showing practical applications of mechanism to the design of machinery, are given at intervals throughout the course. *Three hours, second and third terms. M. W. Th.* 8-9.

605. Graphic statics of mechanism: Required in courses of electrical engineering and mechanical engineering. The lectures provide a brief course in graphic statics, graphical statics of mechanism, and in the design of structures, including roof trusses for factory buildings, crane frames, girders, and water-tank towers. The stresses in machines and structures are investigated by graphical methods, which are carefully checked in the beginning, by analytical proofs. This course includes the solution by graphical methods of such problems, before which analytical methods are comparatively impotent, as those which involve the friction losses in machines, and of the determination of the efficiency of mechanisms. The graphical method is also applied to dynamics by problems in the balancing of engine crankshafts working under specified conditions. The use of manufacturers' handbooks and drafting-room practice are given special attention. *Two hours, first term. W.* 10-11, *Fri.* 8-9.

606. Machine design: Required in the courses of electrical engineering and mechanical engineering. Instruction is given in the design of fastenings and machine parts, and in the general methods of arranging views. This course includes the design of cams, gear tooth outlines, quick-return motions, and link-work combinations, which supplements course 604, in kinematics. Scale drawings of simple machines are made from dimensioned sketches, which each student makes for himself from an actual machine or model. Tracings and blue prints are made from these drawings. All the instruction is intended to familiarize the students with modern drafting-room methods.

606 (a). Inventive design: At intervals during the session problems are proposed to the class which involve both invention and design. The problems are given in a serial order and are progressive; they are selected with a view of developing the inventive capacity of the student. The inventions are submitted as the work of the student alone, and must contain complete drawings and full specifications in form corresponding to that required by the United States Patent Office. The designs are graded on the basis of the originality, adherence to specifications, clearness of drawings, accuracy, and neatness. The early problems consist of the design of simple mechanical devices requiring only well-known principles; in the later inventions are involved and bring into use the theoretical principles pursued in electricity, mechanics, and physics. *Three hours, first term; five hours, second and third terms. Tues. and Fri.*, 8-9; *Wed.* 10-11.

SENIOR CLASS.

607. Machine design—lectures: Required in the courses of mechanical engineering and electrical engineering. These lectures are intended to cover the general instructions to the students, such as the selection of materials for different machine parts, the rules for proportion of parts to secure strength, symmetry, and cheapness of manufacture, and the best methods of making, recording and preserving the calculations incidental to the design of a complete machine. Much valuable engineering data of current nature in the form of notes are given as a supplement to the text-book. Illustrated lantern lectures on subjects related to the course are given at intervals during the year. *One hour, first term; two hours, second and third terms.* 9-10 *Thu. and Sat.*

608. Machine design—drawing: Required in the course in mechanical engineering. This is a continuaton of the junior course in machine design. Original problems involving the design of complete machines to work under specified conditions are assigned, and the student develops the idea in the form of sketches. These are submitted to the instructor for criticism and are afterwards embodied in complete detail and assembly drawings. The calculations of each design are written up neatly and filed with the drawings. Special attention is given to the strength of the parts, to the harmonious and symmetrical appearance of the complete machine, and to the details as regards practical manufacture. *Six hours, entire session. Fri.* 2-5, *Sat.* 10-1.

609. Machine design—drawing: Required in the course in electrical engineering. The work given and the methods pursued are similar to those described in course 608, just preceding, but the amount of work required is reduced in proportion to the amount of time given to the subject. *Three hours, entire session. Sat.* 10-1.

610. Engineering writing: This course is arranged for senior students in the engineering branches and is required in courses of civil, electrical and mechanical engineering. Its purpose is to familiarize the student with the different forms of technical writing, and to provide exercise with written work; to pursue study of trade catalogs, technical magazines, scientific papers, and technical nomenclature. Course in Composition (Ac. 102a) is a prerequisite for this course. A loose-leaf note book, containing the written work, is submitted by the student each week, and is the basis for the evaluation of the term grade. The lectures and laboratory work are arranged as follows:

(1) Lectures: complete notes required.

(2) Graphic Methods of Presenting Facts: study of charts, curves and diagrams.

(3) Engraving Processes: photo-engraving; wax-engraving; prepare drawings for copy for illustration.

(4) Photograhphic Illustration: use of camera; selection of views for cuts, use of "skeleton" and "x-ray" photo-illustrations.

(5) Study of Trade Catalogs: preparation of a simple trade catalog for manufactured article.

(6) Study of Current Engineering Writings: patent office reports; periodicals, magazines and scientific papers.

(7) Visit to power manufacturing plant: preparing complete article from notes, illustrated with photographs, charts, diagrams and drawings. *Three hours, first term.*

611. Home Industries—industrial art (vocational): This course is a continuation of the work given in 601 (8), without which it cannot be pursued. The work is arranged for the needs of students of the sophomore and junior classes who intend to teach this branch, men and women, but is particularly suited to the latter—teachers and homemakers. The subject matter is varied and adapted to the rural school as well as the high school. Home Industries, which includes the making of articles of use for the home, is given important consideration. A large part of the course consists of training in vocational lines that lead to the industries. The work is given by lectures and laboratory practice—one lecture and six hours practice per week. The divisions of the course are as follows:

(a) Paper work: Advanced work with paper and cardboard. Design and construction of booklets, place cards, candy baskets; bookbinding; sewing, pasting and finishing books.

(b) Basketry: Work in reed, raffia, and native materials —pine needles and corn husks. Tea mats, sewing baskets, fruit baskets, sandwich trays, jardiniers, electroliers.

(c) Stencil Cutting and Design: Preparing the stencil board; design of stencils for decoration of booklets, textiles, and walls; compound stencils for the production of posters, etc.

(d) Wood-work: Advanced work in wood with the knife and coping saw; use of carpenter's tools; gluing, nailing, finishing and decorating.

(e) Clay Modelling and Plaster Casting. Making of modelling tools; advanced work in clay and plasticine; reproduction of models in plaster; finishing the plaster casts.

(f) Art Metal Work: Design and construction of articles in iron, copper, brass, and silver; soldering and brazing; enameling; finishing metal work—bronzing and oxydizing.

(g) Weaving: Construction of primitive loom and the weaving of rugs and pillow covers, etc.; design and weaving of pattern work on the Swedish loom; dyeing of materials; decorating plain woven work with stencil patterns.

(h) Refinishing Furniture: Removing old stain and varnish; use of stain and varnish; preparing homemade stain—Old English, weathered, and mission; enamel and ivory finishes; use of stencils in furniture decoration.

(i) Pattern Drafting: Drafting of patterns for making clothing with the application of the principles of mechanical drawing; making stuffed form for testing the drafted patterns.

GRADUATE STUDENTS.

612. The work offered during the post-graduate year is an extension of that of the senior year. More of the theory of the subject is taught, more intricate machines are involved, and problems are given involving the design of a series of machines for manufacturing some specific article. The problems arising in the design of a line of machines of different sizes are also taken up, including the applications of graphical methods and the use of factors of enlargement in reduction. Special attention is given to the effect of current practice on the proportion of machine parts.

A research study into the Patent Office records or some machine or device is offered in this course. This feature is to develop the inventive capacity of the student, and is given special attention.

Suitable text and reference books are used.

613. Methods of teaching drawing and descriptive geometry: A course in the methods of teaching drawing and descriptive geometry is given to those who wish to prepare for teaching these branches. This course includes advanced work in shape of problems, supplemented by frequent conferences with the instructor, a full bibliography of works on the subjects, and an extended course in reading.

Those who desire to avail themselves of an opportunity to practice the teaching of these subjects may be permitted to attend the meetings of the large classes in elementary work for the purpose of observing methods of teaching .

Those who show sufficient preparation may be allowed to assist in tutoring delinquent students and those who enter conditioned.

Special attention is given to the subject of drawing as taught in high school work.

614. Thesis: A thesis taken in this department may be a study of some machine or its parts; research in records of subjects relating to the work of the department; or, a study of cur-

rent practice in the design of some specific machine. It is required to be written in parts, one of which is to be presented at the end of each term. The complete thesis is due on May 1st.

TEXT--BOOKS.

Cross' Mechanical Drawing, Jamieson's Isometric Drawing, Smith's Essentials of Descriptive Geometry, French's Engineering Drawing, Keown's Mechanism, Spooner's Machine Design, Smith and Marx's Machine Design, Cathcart and Chaffee's Graphics, Halsey's Handbook Machine Design, Frost's Good Engineering Literature, Watt's Composition of Technical Papers, Brinton's Graphic Methods for Presenting Facts.

ARCHITECTURE.

PROFESSOR BIGGIN.

The department of architecture was established in June, 1907. Four-year courses are offered in architecture and architectural engineering, both leading to the degree of Bachelor of Science. The freshman and sophomore years of these courses are respectively alike, affording the student ample opportunity for investigation before making a choice. The schedules conform to the "standard minima" of the Association of Collegiate Schools of Architecture. A two-year special course in architecture is offered for the benefit of mature draftsmen, and a certificate given on completion.

The first requirement in architecture is the ability to design, from the artistic side, that the structure may please the eye, and from the practical one, that it may suit its purpose. Next in importance are the engineering studies necessary for proper construction. Finally the student must acquire the fundamentals of that broad cultural training everywhere recognized as indispensable to an architect's success.

Architectural design is taught on the basis of problems requiring a month or more for solution, and developed by the student under constant personal criticism. These are accompanied by short sketch problems to promote quickness of thought and execution, with no criticism until after they are turned in for judgment. Freehand drawing in some form runs throughout the entire course in architecture. History of architecture is taught by lantern lectures, accompanied by library research work and sketching; for students in architecture this is followed by historic ornament and short courses in the history of painting and sculpture.

A general course is given in building construction and superintendence, with the preparation of working drawings, details, specifications and contracts. This is supplemented by special

work in the various engineering departments of the college, along such lines as heating and ventilation, wiring and illumination, reinforced concrete and steel frame construction. Of foreign languages, French is the most useful to the architect and is required.

Students who at the close of the sophomore year elect architectural engineering, devote less of the remaining period than those in architecture to the subjects of design and history. They are also not required to take water color painting, life class, clay modeling, or a foreign language. The time thus saved is occupied in engineering studies and advanced construction.

During the summer months all students in the department are required to spend one month or more in the offices of practicing architects, or follow a prescribed course in library research work and sketching; examinations are held on this in the fall, and college credit is given.

The following courses are offered in this department:

FRESHMAN CLASS.

11. Freehand drawing: Work in pencil and wash from casts of architectural ornament, architectural fragments and parts of the figure. Out-of-door sketching. *Four hours, entire session. T. Th.* 2-4.

15. Shades and Shadows: Delineation of architectural shades and shadows. This course must follow or be accompanied by descriptive geometry. *Three hours, lectures and drafting, first term. M. W. F.* 11-12.

17. Perspective: Theory and practice of architectural perspective, and methods of rendering. This course must follow or be accompanied by descriptive geometry. *Three hours, lectures and drafting, third term. M. W. F.* 11-12.

19. Elements of architecture: The classic orders of architecture and elementary studies in composition, with drawings rendered in India ink. This course must follow or be accompanied by descriptive geometry. *Six hours, lectures, library research and drafting, entire session. M. F.* 2-5.

SOPHOMORE CLASS.

21. History of architecture: Origin and development of historical styles of architecture from the earliest times to the fall of the Roman Empire; the Moslem irruption; Romanesque and Gothic architecture. Typical examples are studied in detail and for this purpose the lantern is in constant use. Stress is laid on the evolution of a style from changes in structural forms, political and religious conditions and national character. Prerequisite course: Ancient and medieval history; stu-

dents who have not offered this for entrance must take it before the sophomore year. *Three hours, lectures, library research and sketching, entire session. M. W. 7-8, T. 9-10.*

25. Charcoal drawing: Work in charcoal and wash from casts of architectural subjects, antique sculpture and from life. Out-of-door sketching. Prerequisite course: Arch. 11, or its equivalent. *Six hours, entire session. M. F. 2-5.*

27. Pen and ink rendering: Given with special reference to the rendering of architectural subjects. Prerequisite course: Arch. 11 or its equivalent. *Four hours, third term. T. Th. 10-12.*

29. Architectural design: A study of architectural composition; problems in design, composition, planning, motives, details and rendering. Prerequisite course: Arch. 19, or its equivalent. *Twelve hours, lectures, library research and drafting, entire session. T. 2-4, W. 2-5, Th. 9-10 and 2-4, S. 9-1.*

JUNIOR CLASS.

31. History of architecture: Continuation of the technical and historical study of architecture; the Renaissance and modern times. During the second term particular attention is given to architectural development in the United States. Prerequisite course: Arch. 21. *Three hours, lectures, library research and sketching, first and second terms. T. 9-10 and 7-8, Th. 7-8.*

32. Historic ornament: An analysis and study in detail of the main historic lines of decoration, with a brief outline study of the development of mosaic, ceramics, stained glass, ornamental metal work, textile fabrics, furniture and other minor arts. Prerequisite course: Arch. 31. *Three hours, lectures, library research and sketching, third term. T. 9-10 and 7-8, Th. 7-8.*

33. Building construction—masonry: Foundations, footings and walls; limes, cements and mortars; stones and stone cutting; stone and brick masonry; terra cotta; concrete; plastering; fire resisting construction. *Three hours, first term, M. W. F. 9-10.*

34. Building construction—carpentry: Properties and uses of various woods; seasoning and preservation of timber; methods of framing; exterior and interior finish; slow-burning and mill construction; sheet metal work; elevators; painting and glazing; hardware. *Three hours, second term. M. W. F. 9-10.*

35. Plumbing and drainage: General sanitation; water supply, filtration and softening; pumping and storage; fire lines, supply, vent and waste systems; plumbing fixtures; sewage disposal. *Three hours, third term. M. W. F. 9-10.*

37. Water color painting: Work from models and still life. Conventional and sketch rendering of architectural subjects. Out-of-door sketching. Prerequisite course: Arch. 25. *Four hours, entire session. S.* 9-1.

38. Working drawings: Under such limitations as a client would be likely to impose, working drawings, details of construction, specifications and estimates are prepared for a building designed in course 39. *Twelve hours, lectures and drafting, second and third terms. T. Th.* 2-4, *S.* 9-1.

39. Architectural design: Continuation of problems in design, composition and planning. The planning of domestic buildings. Prerequisite course: Arch. 29. *Twelve hours, library research and drafting, first and second terms. M. W. F.* 2-5, *T. Th.* 2-4.

SENIOR CLASS.

42. History of painting: A brief survey of the development of painting with special reference to mural work. Lectures and assigned readings. *One hour, first term. W.* 8-9.

43. History of sculpture: An outline study of the development of sculpture and its relation to architectural design. Lectures and assigned readings. *One hour, second term. W.* 8-9.

44. Professional practice: Relations of the architect, owner and contractor; professional ethics; contracts and laws of business; office methods and other matters of practical value. Lectures, with assigned readings, reports and discussions. *One hour, third term. W.* 8-9.

46. Life class: Figure work from life, in color or black and white. Out-of-door sketching. Prerequisite course, except for special students: Arch. 37. *Six hours, first and second terms. T. Th.* 10-1.

47. Clay modelling: Work from architectural casts and from sketches. Prerequisite course: Arch. 32. *Six hours, third term. T. Th.* 10-1.

48. Architectural design: For architectural engineers. Advanced problems in design, composition and planning, followed by the preparation of working drawings, details of construction, specifications and estimates. During the third term a single major problem is studied and worked up as a thesis. Prerequisite course: Arch. 29. *Sixteen hours, library research and drafting, entire session. T. Th.* 11-1 *and* 2-4, *S.* 9-1.

49. Architectural design: For architects. Advanced problems in design, composition and planning. During the third term a single major problem is studied and worked up in detail as a thesis. Prerequisite course, except for special students: Arch. 39. *Twenty-four hours, library research and drafting, entire session. M. W. F.* 2-5, *T. Th.* 2-4, *S.* 9-1.

COLLEGE OF AGRICULTURAL SCIENCES

CHEMISTRY.

PROFESSOR ROSS.
PROFESSOR HARE.
PROFESSOR BRAGG.
ASSISTANT PROFESSOR POWELL.
INSTRUCTOR MARTIN.
ASSISTANT GENTRY.

Instruction in this department embraces the following courses of lectures, systematic laboratory work being given in connection with each course for the practice of chemical analysis and chemical research:

FRESHMAN CLASS.

101. Course in general chemistry: This consists of a series of lectures including a discussion of the fundamental principles in chemical philosophy in conection with the history, preparation, properties, and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form. *Four hours, entire session. M. W. F. 8-9, T. 12-1.*

REFERENCE BOOKS.

McPherson and Henderson's General Chemistry, Newth, Holleman, Smith, Mellor, Chemical Journals.

SOPHOMORE CLASS.

103 (b). Organic chemistry: This course, though somewhat more condensed, is similar to 103 (a), with the exception that the latter portion of the course is devoted to a special study of fats, carbohydrates and proteins with reference to their functions in the life processes of plants and animals. *Three hours, first and second terms. M. W. F. 8-9.*

105. Agricultural chemistry: This course consists of lectures on chemistry in its application to agriculture and includes a thorough discussion of the origin, composition, and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical prin-

ciples involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist. *Four hours, third term. M. T. W. F.* 8-9.

REFERENCE BOOKS.

Snyder's Soils and Fertilizers, Snyder's Chemistry of Plant and Animal Life, Johnson's How Crops Grow, and How Crops Feed, Lupton's Elementary Principles of Scientific Agriculture, Johnson and Cameron's Elements of Agricultural Chemistry, Stoddard's Agricultural Chemistry, Storer's Agriculture in Relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

JUNIOR CLASS.

102. Industrial chemistry: Lectures, including discussion in detail of the processes and chemical principles involved in the most important applications of chemistry, in the arts and manufactures, to the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc. These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams. *Three hours, first and second terms. M. W. F.* 10-11. *Four hours, third term. M. W. F. Th.* 10-11.

REFERENCE BOOKS.

Thorp's Industrial Chemistry, Wagner's Chemical Technology, Muspratt's Chemistry as applied to Arts and Manufacturing, Ure's Dictionary, Watt's Dictionary, Sadtler's Industrial Organic Chemistry, Blount and Bloxom's Chemistry for Engineers and Manufacturers.

103 (a). Course in organic chemistry: Instruction in this subject embraces lectures and recitations upon the leading facts and principles of the chemistry of the carbon compounds, and includes a study of the method of preparation of the more important compounds, their properties, and their structural and stereo-chemical relations. *Three hours, first and second terms; Two hours, third term. T. Th.* 9-10.

TEXT AND REFERENCE BOOKS.

Remsen's Organic Chemistry, Richter's Organic Chemistry, Gatterman's Practical Methods of Organic Chemistry.

SENIOR CLASS.

104. Course in Metallurgy: This consists of lectures and recitations upon the more important metals, such as iron and

steel, copper, lead, tin, silver, gold, mercury, zinc, etc. It includes a discussion of the physical and chemical properties of the metals and their alloys, the ores and their treatment, and the processes by which the metals are obtained from the ores, with chemical reactions involved. *Three hours, first term, M. W. F.* 10-11; *second term, M. W. F.* 8-9.

104b. Metallurgy: An advanced course in iron and steel. Lectures and recitations upon the special methods of manufacturing iron and its several alloys, or steels. Required of seniors in mining engineering, chemical engineering, chemistry and metallurgy, and mechanical engineering. *Three hours, third term. M. W. F.* 10-11.

106. Engineering chemistry: A course given during the senior year, special attention being devoted to the study of the construction and equipment of the chemical plants devoted to the manufacture of the more important chemical products. Excursions to various chemical and metallurgical plants during the course of the year will aid in familiarizing the student with the practical details of the operation of the leading industries. *Two hours, second and third terms. M. F.* 12-1.

107. Course in theoretical chemistry: The more modern phases of chemical theory are given special attention. *Two hours, first term. M. F.* 12-1.

108. Course in physical chemistry: Lectures and recitations. *Two hours, entire session. T. Th.* 11-12.

109. Methods of teaching chemistry in the secondary schools: In this course, students who have had the necessary preliminary work in chemistry will be afforded the opportunity of taking laboratory practice in experimental chemistry for lecture purposes and for the purpose of the practical study of methods of handling classes in experimental laboratory work. Advanced students can also take the course in the history of chemistry which is provided in the senior year of the course of chemistry and metallurgy. *Hours to be arranged.*

111. Course in advanced inorganic chemistry: *Two hours per week, entire session. M. W.* 9-10.

LABORATORIES.

110. Courses of practical work in the laboratory are carried on in connection with all courses of lectures.

The laboratories, which are open from 9 A. M. to 5 P. M. during six days in the week are amply supplied with everything necessary for instruction in chemical manipulation in qualitative and quantitative analysis, and in the methods of prosecuting chemical research. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles and the common re-agents and apparatus used in the qualitative and quantitative analysis.

At the close of the session he will be credited with such articles as may be returned in good order, the value of those which have been injured or destroyed will be deducted from his contingent fee.

SOPHOMORE CLASS.

(a) All students in the courses in agriculture, chemistry and metallurgy, chemical engineering, and mining engineering are required to take practical laboratory work. Students in the course in pharmacy, upon application, may be allowed to take this work. The work of this course embraces the preparation of a number of non-metallic elements, and some of the more important inorganic compounds, the identification of metals by means of the blowpipe, and the qualitative separation and detection of the bases and acids. *Six hours, entire session. First section, M.* 11-1, *Th.* 8-10, *F.* 9:30-11:30; *second section, M. W. F.* 2-4.

JUNIOR CLASS.

110 (b). A course in quantitative analysis, embracing gravimetric and volumetric analysis, and including the analysis of limestones, iron ores, etc. *Six hours, entire session. M. W. F.* 2-4.

SENIOR CLASS.

(c). A course in quantitative analysis, including analysis of fertilizers, soils, coals, ores, iron and steel, sugars and sugar products, feed stuffs, mineral waters, fluxes, slags, cinders, furnace gases, etc. The nature of the work is varied somewhat to suit the individual object of the student. *Six hours, entire session. M. W. F.* 2-4.

(d). The laboratory course provided for students in the course in mining engineering embraces work in quantitative analysis, including assaying. In the latter portion of the course, special attention is given to metallurgical analysis and the fire assay of ores of gold, silver, and other important metals. *Six hours, entire session. M. W. F.* 2-4.

(e). In the courses in pharmacy and veterinary science, instruction in urine analysis and in toxicology and toxical analysis is given during the last term. *Six hours. M. W. F.* 2-4.

(f). In the senior year, a laboratory course in organic chemistry is provided for students in the course in chemical

engineering throughout the entire year, and for students in the course in chemistry and metallurgy during the third term. *Four hours, entire session. T. Th.* 2-4.

The short course includes systematic laboratory work in organic preparations, while the longer course embraces work in organic analysis, as well as in preparations.

112. In addition to the laboratory work above described, it is designed to give a short course of laboratory work in industrial chemistry, in which the student will apply upon a small scale the principles involved in the processes of some of the more important chemical industries.

Students completing the above courses are afforded ample facilities for advanced work along special lines.

AGRONOMY.

PROFESSOR DUGGAR.
PROFESSOR FUNCHESS.

The regular agricultural course extends through four years, and is intended to prepare those who complete it to become successful farmers, farm superintendents, and agricultural scientists in the various divisions of agricultural work in the U. S. Department of Agriculture, and the numerous agricultural colleges and experimental stations. The studies in the regular agricultural courses are so arranged that a student may obtain a thorough education while acquiring the technical training necessary to the most successful management of farming operations and of agricultural investigation or teaching. No foreign language is required for graduation in this course, but those who expect to engage in scientific work of the U. S. Department of Agriculture or of the agricultural colleges and experiment stations, have the oportunity to study Latin, French and German, or any one or two of these.

For the benfit of those who are unable to spend four years at college, and who desire to prepare for the management of a farm, a short two-year course in agriculture is provided. In this the student devotes his entire time to those studies having a direct bearing on his future occupation.

The following courses of instruction are offered:

SOPHOMORE CLASS.

202. Corn: Lectures, recitations, and field practice on the cultivation, judging and improvement of corn. The student assists in harvesting certain experiments, becomes acquainted with a number of the best varieties, learns to select the best ears and the best plants, and notes the results of experiments

in improving or breeding corn. *Two hours, lectures; two hours, laboratory, first term. T. Th.* 11-12, *W.* 2-4.

203. Farm accounts: *Lectures and Practice, two hours, second term.*

204. The small grains: Lectures, recitations, and field practice on wheat, oats, rye and barley. These plants are treated both as grain crops and as forage plants. *Two hours, lectures; two hours, laboratory, third term. T. Th.* 11-12, *W.* 2-4.

JUNIOR CLASS.

205. Leguminous forage plants and soil improvement: Lectures, rectitations, and field practice on this most important group of forage plants, including cowpeas, soybeans, alfalfa, the clovers, vetches, etc. These plants are treated both with reference to their use as forage plants and as a means of improving the soil. *Two hours, lectures, two hours, laboratory, third term. W. F.* 10-11, *T.* 2-4.

SENIOR CLASS.

206. Cotton. Lectures, recitations, and field practice in identifying and comparing a large number of varieties growing on the experiment station farm; judging individual cotton plants, and lectures on the cultivation, fertilization, and improvement of cotton. The collection of varieties growing on experiment station farm usually numbers between fifty and one hundred varieties, and all of these are available for students' use. *Two hours, lectures, two hours, laboratory, first term. T. Th.* 12-1, *S.* 9-11.

207. Cotton classing: This course of laboratory work consists of practice in classing the commercial grades of cotton by comparing great numbers of samples procured from the offices of cotton buyers, with a nearly complete set of type samples owned by this department. A part of this practice will be under the supervision of experienced cotton buyers. *Hours by appointment.*

207a. Special crops: A course of lectures dealing with sugar cane, tobacco, rice, broom-corn, and other southern crops not treated in other courses. *Two hours, second term. T. Th.* 12-1.

208. Farm management: A course of lectures and practice dealing largely with rotation of crops, cost of producing different crops, systems of farming, selection of a farm, and plans for the best use of the farm or soil in which each student is most interested. This course is intended to give the student an opportunity to bring to bear on practical problems the information acquired from preceding courses of instructions

in agriculture and related subjects. *Two hours, lectures; two hours, laboratory, third term. T. Th.* 12-1, *S.* 9-11.

209. Investigation as a basis for a thesis: After a month spent in special reading under the direction of the professor of agronomy with a view to the selection of a subject for a thesis, the student will perform some agricultural experiment in crop production, soil treatment, or in testing farm machinery. Suitable facilities for such thesis work are provided in the fields and agricultural laboratories. In addition to conducting an original experiment, the student will review the literature of agriculture to ascertain the results of similar or related experiments. It is expected that the results of some of these experiments will be worthy of publication. *Entire session.*

211. Soils and soils laboratory: Recitations intended to acquaint the student with the physical properties of soils, with the principal soils of Alabama, and especially those of the region from which each student comes. Instruction in this course will be given with a view to fitting a student to engage in the soil survey work of the U. S. Department of Agriculture, as well as to prepare him for the rational management of the soil of the farm. *Five hours, entire session. T. Th.* 9-10, *Th.* 2-5.

212. Methods of teaching agriculture: This is a course of lectures and laboratory and field exercises intended to meet the needs of those who expect to teach agriculture or nature study in the common schools and agriculture in the high schools. Special attention is given to the selection of material for illustrating the principles of agriculture, and practice will be given in conducting a number of simple demonstrations. Frequent excursions are made in the fields. *Two hours, third term.*

Post graduate courses in crop production, soils, and farm management are offered. The exact nature of the subject will depend upon the special requirements of the student.

Students taking a four-year course in agriculture receive instruction in various branches of animal husbandry and horticulture, as well as in the natural sciences bearing on agriculture.

COURSES FOR SPECIAL STUDENTS.

213. Soils and fertilizers: (For special students only)—This is a lecture course in which the student is made familiar with the origin, chemical and physical properties, and management of the soil. A discussion of the relation of rotations, fertilizers, and lime to the maintenance of soil fertility is given. *Two hours, first and second terms. Tu. Th.* 8-9.

214. Terracing and Drainage: (For special students only)—Field instruction is given in this course with the view of fitting the student to lay off terraces and design drainage systems on the farm. *Two hours, second term. F.* 10-12.

AGRICULTURAL ENGINEERING.

PROFESSOR ————

ASSISTANT PARKER.

JUNIOR CLASS.

520. Drainage, terracing, and farm structures: While these topics are the subjects of lectures and recitations, chief stress is laid on giving the student practice in locating terraces, laying out ditches and planning systems of tile drainage. Such time as is available is given to the study and planning of barns, fences, gates, etc. *Two hours lectures, two hours laboratory, first term.*

SENIOR CLASS.

521. Farm engines: This course consists of lectures and laboratory practice with farm engines; application of power to farm operations, such as feed grinding, silage cutting, pumping, spraying, wood saws, etc.; transmission of power, including belt lacing, rope splicing, etc. Especial attention is given to finding and remedying engine troubles. *Two hours, second* term.

522. Farm machinery: It is the aim of this course to acquaint the student with improved farm machinery; adjustment, construction, repair, and operation of preparation machinery, seeding machinery, cultivators, haying machinery, etc. *Two hours, second term.*

BOTANY.

PROFESSOR GARDNER.

ASSOCIATE PROFESSOR MASSEY.

ASSISTANT BURLESON.

ASSISTANT M'CALL.

The courses offered by the Department of Botany are designed to meet the needs of three different groups of students: Those desiring to secure some general acquaintance with the elementary facts and principles of biological science as a necessary part of a cultural education, those desiring a thorough and detailed presentation of certain aspects of the subjects as a prerequisite to entrance upon the study of medicine or of some phase of applied botany, such as horticulture or agronomy, those seeking the fullest possible collegiate training in the

subject as a preparation for teaching or for advanced work in the subject. For information as to laboratory equipment see page 19.

SOPHOMORE CLASS.

301. General botany: This course is planned to meet the needs of all three classes of students just named. It is designed to furnish a broad general introduction to the fundamental principles of biological science, supplying the foundation upon which subsequent courses are built while at the same time giving to the non-specialist a good acquaintance with those biological principles which should form a part of his equipment for life. The course is not rigidly morphological, but attempts to supply an introduction to the evolutionary history, the fundamental physiological processes, the life relations and classification of plants. Required of all sophomores in the college of agriculture and two-year pharmacy specials. A laboratory fee of $3.00 is charged in this course to cover the cost of materials and laboratory sheets. *Two hours lectures, and four hours laboratory, entire session.*

302. Poisonous and medicinal plants: The object of this course is to train students in the classification and recognition of poisonous and medicinal plants. The students will be taught to recognize medicinal plants in the field as well as in the laboratory. The department herbarium will be used freely to illustrate important poisonous plants. The lectures will deal with the families represented by important poisonous and medicinal plants. Required of sophomores in veterinary and pharmacy and of two-year pharmacy specials. *Two hours lectures, and four hours laboratory, third term.*

JUNIOR CLASS.

303. Agricultural bacteriology: This course is designed to supply to students contemplating specialization in animal husbandry or in some phase of applied botany, as horticulture, forestry, or agronomy, such an introduction to the principles of bacteriology as may furnish a basis for study of the special problems to be encountered in these lines of work. After a brief introductory discussion of the general morphology and physiology of the bacteria, the biological relations of the specialized groups will be taken up. The bacteriology of fermentation and putrefaction, the nitrogen-fixing and sulphur bacteria, the application of bacterially produced processes in the industries, and the more important problems of soil bacteriology will be dealt with in such details as time permits. The point of view throughout the course is distinctly economic. The forms pathogenic for man and animals will not be considered. A prerequisite for this course is Agr. 301. A labora-

tory fee of $2.00 is charged in this course to cover the cost of materials and laboratory sheets. *Two hours lectures, four hours laboratory, first term. M. W.* 9-10, 11-1.

304. Plant physiology: This course deals with the fundamental processes involved in plant response and plant behavior as related to crop production. The topics covered in the lectures and laboratory are the following: The cell as the physiological unit; the principles of absorption; rise of sap and transpiration; water requirements of economic plants; mineral nutrition; the carbon relations of plants; the relations to nitrogen; the products of metabolism; digestion and translocation; respiration; aeration and fermentation; growth, reproduction; the relation of plants to temperature, light and toxic agents; variation and heredity. A prerequisite for this course is Agr. 301. A laboratory fee of $3.00 is charged in this course to cover the cost of materials and laboratory outlines. *Two hours lectures, four hours laboratory, second and third terms. M. W.* 9-10, 11-1.

307. Range and pasture plants: A study of the poisonous and forage plants of pasture and range. The object of this course is to familiarize the student with the important plants of this region which are beneficial or injurious to horses, cattle, hogs and sheep. Growth, habits, general aspects, distribution and ecological relations will also receive consideration. Required of juniors specializing in Animal husbandry, and juniors in Veterinary Medicine. *One hour lectures, four hours laboratory or field work, first term.*

SENIOR CLASS.

305. Plant pathology: In the fall term, pathological technique, the nature, processes, relationships and classification of fungi in general and disease producing fungi in particular will be studied. Such topics as saprophytism, symbiosis, parasitism and mycorhiza will receive consideration. A collection of fungi will be required. The winter and spring terms will be devoted to a detailed study of plant diseases, their causes, effects and remedies. Students will be expected to become familiar with the literature of plant pathology and to make reports on assigned topics. They will be taught to recognize plant diseases *in the field,* and to estimate the amount of damage. Prerequisites for this course are Agr. 301, 303, and 304. A laboratory fee of $3.00 is charged to cover cost of materials and laboratory sheets. *One hour lecture, four hours laboratory, entire session.*

306. Plant histology: A short one-term course intended to familiarize the students with histological technique as a foundation for advanced work in botany, and for those who wish

to teach botany. Prerequisite is Agr. 301. *Two hours lectures, four hours laboratory, second and third terms.*

308. Advanced plant physiology: The first part of this course deals with a more detailed study of some of the phases of plant physiology for which there is not sufficient time in course 304. The second part of the course deals with the chemical recognition and qualitative estimation of the principal groups of food materials, carbohydrates, fats and proteins. and furnishes an introduction to the methods and technique of physiological chemistry as applied to studies in plant physiology. The third part of this course consists of micro-chemical study and recognition of the organic and inorganic constituents of plants. *Two hours lectures and four hours laboratory throughout the year.*

GRADUATE WORK.

The department offers to properly prepared students opportunity for advanced work in botany, particularly in plant physiology and pathology. Students planning to do graduate work should consult with the head of the department as early in the course as possible, preferably at the beginning of the junior year, in order that the proper choice of the electives may be made. The general requirements for graduate work in the department are: the satisfactory completion of the undergraduate courses in botany, together with the required courses in organic and agricultural chemistry, courses in plant breeding and forestry. (Horticulture 609 and 608), and a fair reading knowledge of German and French. By special arrangements with the department head, a student may begin graduate work without having fully met these requirements, with the understanding that they are to be fully met prior to serious entrance upon his work in this department, and in addition to the work in botany required for the Master's degree.

TEXT AND REFERENCE BOOKS.

Gager's Fundamentals of Botany; Ganong's Textbook of Botany; Coulter's Plant Structures; Robbins' Botany of Crop Plants; Gray's School and Field Botany; Kraemer's Botany and Pharmacognosy; Duggar's Plant Physiology; Coulter, Barnes and Cowles' Textbook of Botany; Jost's Plant Physiology; Marshall's Microbiology; Conn's Agricultural Bacteriology; Haas and Hill's Chemistry of Plant Products; Duggar's Fungous Diseases of Plants; Stevens' Fungi which Cause Plant Diseases; Hesler and Whetzel's Manual of Fruit Diseases.

HORTICULTURE.

PROFESSOR STARCHER.
ASSOCIATE PROFESSOR PRICE.
LABORATORY ASSISTANT ISBELL.

Instruction in this subject begins with the third term of the sophomore year and continues through the junior and senior years for students taking a regular four-year course in agriculture. A special two-year course in horticulture and related subjects is open to students who are unable to take the regular four-year course.

Practical exercises in the laboratory and field supplement the lectures and recitations. Constant attention is given to the fundamental principles and science upon which the best in practical methods is based.

SOPHOMORE CLASS.

601. Principles of plant culture: This includes the study of germination, propagation, transplanting, conditions of plant growth, etc.; also seed testing, preparation and sowing of seed beds. *Recitations, two hours, third term. W.* 11-12, *Th.* 10-11.

Plant propagation: (to accompany 601): Laboratory practice in seed testing, propagation of plants, pruning, etc. Students are required to submit illustrated notes. *Laboratory and field, four hours, third term. M. Th.* 2-4.

Text-books: Principles of Plant Culture (Goff), and The Nursery Book (Bailey).

JUNIOR CLASS.

602. Landscape gardening: An introduction to the general subject of landscape design. The trees, shrubs, vines, perennials, and annuals adapted to southern gardens are studied. Individual problems are presented for the embellishment of the home and school grounds, and plans for public squares and parks are studied. *Lectures, two hours, first term. Tu. Th.* 10-11.

Text-books: Landscape Gardening (Waugh). References Landscape Gardening (Maynard), Modern Civic Art (Robinson); The Landscape Beautiful (Waugh); Weidenmann and other authors.

603. Vegetable gardening: Studies of the principal truck and garden crops with notes as to their origin, classification and economic importance; methods of growing, fertilizing, harvesting, marketing, and storing these crops. *Recitations and lectures, two hours, laboratory, two hours, second and third terms; second term, Tu. F.* 11-12, *Th.* 2-4; *third term, Tu. F.* 11-12, *W.* 2-4.

Text and reference books: Garden Farming (Corbett), Vegetable Gardening (Bailey), Up-to-Date Truck Growing in the South (Davis), Vegetable Gardening (Vilmorin), Southern Gardener's Manual (Newman), Vegetable Gardening (Watts).

604. Orchard technique: A laboratory course in spraying, pruning, fertilization, cultivation, and orchard management, supplementing course 603. *Two hours, second term. Tu.* 2-4.

References: The Pruning Book (Bailey), Farm and Garden Rule Book (Bailey).

SENIOR CLASS.

605. Fruit growing: A study of the more important fruits and nuts of the United States, with special reference to their cultivation in home plantings and commercial orchards, harvesting, grading, packing, marketing, leading varieties for the several sections. *Recitations and lectures, three hours, laboratory, two hours, entire session. M. W. F.* 9-10, *laboratory F.* 2-4.

Text and reference books: Principles of Fruit Growing (Bailey) 20th revised edition. Fruit Harvesting, Storing and Marketing (Waugh), Citrus Fruits (Coit), The Pecan (Hume), Citrus Fruits and Their Culture (Hume), Systematic Pomology (Budd and Hansen) and (Waugh), The American Fruit Culturist (Thomas).

606. Canning: Studies in the canning of the different fruits and vegetables. *Lecture one hour, laboratory two hours, first term. Tu.* 8-9 *and* 2-4.

607. Floriculture: This course briefly covers the subject of greenhouse construction and management, with special reference to growing of the leading vegetables and decorative plants with discussions on the forcing and marketing of vegetables and cut flowers. *Lecture one hour, laboratory, two hours, second term. Tu.* 8-9 *and* 2-4.

608. Forestry: An elementary course, embracing a study of the forest conditions in Alabama, care of woodlots, preservation of wood, and the uses of the different southern woods. *Recitations and lectures, three hours; laboratory and field exercises two hours, second term. Tu. Th.* 10-11; *W.* 12-1; *laboratory M.* 2-4.

Text-books: Elements of Forestry (Moon and Brown), First Book of Forestry (Roth), Practical Arboriculture (Brown), Primer of Forestry (U. S. D. A.), Principles of Handling Woodlands (Graves), Economics of Forestry (Fernow), Principles of American Forestry (Green), Shade Trees in Towns and Cities (Solotaroff).

609. Plant breeding: A study of the improvement of plants, theories and laws of plant breeding, the origin of the choice

varieties of garden and farm crops. *Lectures and recitations two hours, third term. Tu. and F.* 8-9.

Text and reference books: Principles of Plant Breeding (Gilbert and Bailey), Plant Breeding (Davenport), The Mutation Theory, Species and Varieties (DeVries).

610. Thesis: Students who expect to make their major work in horticulture are required to select a thesis subject not later than October 1st.

ENTOMOLOGY AND ZOOLOGY.

PROFESSOR HINDS.

ASSOCIATE PROFESSOR BUCK.

SOPHOMORE CLASS.

701. Zoology: A general course in zoology is required of all sophomore students in agriculture. The course is given in the first and second terms, and includes brief discussion of the relation of animals to plants and minerals, the nature of cells, the functions involved in life processes and of the classification and distribution of animals. The different animal groups are studied, beginning with the single celled animals, and leading gradually to the most complex forms. *Lectures, two hours; laboratory four hours, first and second terms. T. W. F.* 8-9; *W. Th. or F.* 2-4.

Text: Hegner's College Zoology. A laboratory fee of $1.00 is charged to pay the cost of material and laboratory sheets.

SENIOR CLASS.

702. Entomology: In accordance with the catalogue requirements the work in Entomology is taken by all senior students electing an agricultural group of courses, and by the special two-year agricultural students during their second year. In addition to this senior work, the subject is open to post-graduate students, who have completed the senior course satisfactorily, as an elective course leading to the degree of Master of Science. The senior work is given during the fall and spring terms only, while the post-graduate work continues during the college year.

The senior courses are designed to familiarize the students who anticipate engaging in agricultural work with the most important general facts of entomology, including studies on the structure of insects as applied to their identification; a systematic examination of the different groups, and of the most common insect pests of each group, with methods for their control.

703. A series of lectures on bees and beekeeping is given, and demonstration of modern methods in manipulation of bees is afforded by the college apiary.

Other topics considered are:

The chemistry, preparation and application of insecticides, their merits and defects; tests for detecting adulterations; comparative tests of nozzles and other apparatus. The importance of improved methods of agricultural practice is shown and their effectiveness as controlling factors for insect pests is explained.

Methods in the collection, mounting and preservation of insect specimens are also studied, the student being required to make a systematic collection in the fall and in the spring an economic collection of the pests most closely related to the future occupation of the student. A laboratory fee of $1.00 is charged for material. *Lectures, three hours; laboratory two hours, first and third terms. T. Th.* 10-11, *W.* 12-1, *M.* 2-4.

ANIMAL HUSBANDRY.

PROFESSOR TEMPLETON.
INSTRUCTOR MONTAGUE.

Instruction in this department is given in the class room, in the laboratories and upon the animal husbandry farm with the live stock. While lectures are given on judging animals, the instruction does not stop with the lectures; the students are taken to the barn and feed lots where the animals are placed before them and each student is required to make a written report concerning the animals. Class-room work in dairy instruction is supplemented, strengthened, and made practical by requiring each student to work in the dairy laboratory where butter is made, where Babcock test is used, where the lactic acid in cream is determined, etc. In the senior year, trips are made to cities, state and county fairs, and farms to study live stock judging and management. The live-stock provided by the college for the students' use in studying breeds and judging consist of pure bred herds of Angus, Hereford, Shorthorn and Jersey cattle; Duroc-Jersey, Poland China and Berkshire swine. Percherons, light horses and mules are available for class work.

The department now has the complete herd books of practically all of the leading breeds of live stock in America. By the use of these the student is enabled to inform himself in regard to all pedigrees and to study the different scales of points which the breeders have adopted to represent the highest types of the various breeds. All class room instruction is

given by means of text-books and lectures. Many of the lectures are illustrated by the use of a baloptican.

The courses in this department may be grouped under five main heads:

(1) Judging of live stock; (2) breeding of live stock; (3) feeding of live stock; (4) management of live stock; (5) dairying.

The student is given an opportunity to specialize in animal husbandry throughout the junior and senior years. The courses are as follows:

SOPHOMORE CLASS.

802. Judging beef cattle: The object of this course is to make the student familiar with the various classes and grades of cattle recognized by the leading stock markets, and to familiarize him with the leading beef breeds. Instruction is given by lectures, the use of the score card, and by comparative judging. *Laboratory, two hours, first term. M.* 2-4.

803. Judging dairy cattle: The student is familiarized with the dairy types and breeds, and is given judging instruction by the employment of the same methods as used in beef cattle judging (802). *Laboratory, four hours, second term. M.* 2-4, *W.* 2-4.

JUNIOR CLASS.

804. Dairying: The study of the secretion, character, composition, and production of milk, is made; proper methods of handling milk and cream for consumption, pasteurizing, sterilizing. The students are given thorough work in using the Babcock test and the lactometer, and the lactic acid test, together with the ordinary tests for the purity of milk and its adulterants. They are also drilled on all the phases of butter-making and standardizing milk and cream. Familiarity with the construction, care and operation of the leading makes of cream separators, and other dairy equipment, is required. *Lectures, two hours; laboratory, two hours, first term. Tu. Th.* 9-10; *W. Th.* 2-4.

805. Swine judging: Considerable time is given to the study of the market classes of grades and the leading breeds of lard and bacon types of hogs adapted to southern conditions. The lecture work is followed by the students using the score card and doing comparative judging. *Laboratory, four hours, second term. W.* 2-4, *Th.* 11-1.

806. Sheep judging: The student is instructed in the methods of judging sheep, considering the market classes and grades, and the characteristics of the principal breeds. *Laboratory, two hours, third term. Th.* 2-4.

806 (a). Advanced stock judging: This course is for junior agricultural students who are especially interested in livestock judging, and is a prerequisite to making the intercollegiate stock judging team. No college credit is given. *Hours to be arranged, latter half second term and the third term and first half following fall term.*

SENIOR CLASS.

807. Principles of animal breeding: The lectures of this course will embrace the principles and practices involved in the improvement of the domestic animals. The subjects of reproduction, variation, selection, heredity, line breeding, inbreeding, cross breeding, grading-up, etc., will be discussed in their relations to practical breeding problems. *Lectures, two hours, first term. M. W.* 8-9.

808. Advanced feeding: This course consists of lectures, supplemented by reference reading, upon the most profitable methods of producing, finishing and marketing, pork, beef, and mutton. The various concentrates and roughages are discussed as to their importance and efficiency as feeds for horses, mules and dairy cattle. *Lectures, three hours, entire session. M. W. F.* 10-11.

809. Meats: This consists of a study of the structure and composition of meats, quantity, cost and food value of the various cuts of beef, mutton, and pork; exercise is also given in judging the carcasses of the different classes of animals. A study is made of how the home-dressing and home-curing of pork is carried on. Lectures are given upon the effect of feeding and breeding of the different animals as affecting the value of the carcass and the quality of the meat. *Laboratory two hours, second term. F.* 2-4.

810. Poultry: In this course an effort is made to acquaint the student with the different types of poultry with relation to their use and value on the farm. Instruction is given also in feeding, managing, housing, and judging poultry. *Lectures, two hours, third term. M. W.* 8-9.

811. Judging horses and mules: Lectures and laboratory work are given in the judging of the various classes of horses and mules which are adapted to Alabama conditions. *Laboratory, two hours, second term. M.* 2-4.

812. Live stock management: The raising of horses, cattle, sheep, and swine as a business, is discussed in full detail, featuring the care and management in production and marketing. A study is made of the methods used by the most successful stock farmers. Practical work is given in preparing stock for shows and sales. This course will be limited to, and

required of students majoring in animal husbandry. *Lectures, one hour; laboratory, two hours, entire session, Th.* 8-9; *Tu.* 2-4.

813. Herd book study: This includes a study of the various herd books with the view of becoming familiar with the pedigrees of the leading strains and families of the different breeds of livestock. Emphasis is made on the methods and rules of registration for each of the breeds of livestock. The rules and regulations governing the importations of livestock into the United States and into Alabama, together with the rules and regulations governing the moving of livestock within the United States and Alabama are studied. *Lectures, two hours, second term. M. W.* 8-9.

814. Dairying: This course is outlined to meet the requirements of the senior veterinary students and is similar to course 804. *Lectures, one hour; laboratory, two hours, second term. F.* 11-1.

Special Two-Year Course in Agriculture.

FIRST YEAR.

815. Dairying: A separate course in this subject giving special attention and instruction for the benefit of the two-year students in agriculture, is maintained. The student is familiarized with the butter fat tests, the use of the lactometer, determination of the lactic acid in milk, churning, cream separation, etc. Practice is also given in determining the various common adulterants of milk. *Lectures, two hours; laboratory, four hours, first term. W. F.* 8-9, *Tu. Th.* 2-4.

816. Live stock feeding: This course is offered for the benefit of the first-year veterinary students, and the first-year special agricultural students. The food requirements of the animals' bodies are briefly considered. All through this course the practical, rather than the scientific side of feeding, is emphasized. Special reference is made to feeding horses and dairy cattle. Veterinary students are allowed to discontinue this subject at the middle of the second term. *Lectures, two hours, entire session. First term, Tu.* 8-9, *Th.* 10-11; *second and third terms, M. Th.* 8-9.

817. Live stock management: This course, also, is for the first-year veterinary students, and the first-year special agricultural students. It consists of a series of lectures on the care, housing, and management of horses, cattle, swine, and sheep. *Lectures and Laboratory, three hours, latter half of second and the third term. Tu.* 10-11; *W.* 2-4.

818. Dairy cattle judging: The second term is devoted to judging dairy cattle, in the place of the course in dairying. A detailed study of the several different breeds of dairy cattle

is made, and their chief distinctive characteristics pointed out. Exercises in practical judging are given by the use of the score card and by comparative judging at the barns. *Laboratory, four hours, second term. Tu. Th.* 2-4.

819. Judging beef cattle: In this course the student is familiarized with the leading breeds of beef cattle, and a study of the conformation of each type is made by practical judging. *Laboratory, two hours, third term. Tu.* 2-4.

SECOND YEAR.

820. Judging horses and mules: A special course of judging is maintained for the second year special students in agriculture. The various types of horses and mules and the market classes are studied. Representatives of the different classes are brought before the students who are, by detailed study, given an opportunity to become thoroughly familiar with each of them. *Laboratory, four hours, first term. M. W.* 10-12.

821. Poultry: This course in poultry consists of the study of the types and breeds; the housing, feeding and caring for all classes and ages. From time to time hours are spent in judging. *Lectures, two hours, first term. M. F.* 12-1.

822. Swine judging: This course is a continuation of the course of judging begun in the second year by the study of horses and mules. The leading breeds of swine are kept at the station barns, and the student has ample opportunity to become thoroughly familiar with each. The difference in function and conformation between the lard and bacon types, and the scrubs or natives, is pointed out. A study is made in practical judging by the use of the score card, and by comparative judging. *Laboratory, four hours, second term. M. W.* 2-4.

823. Meats: This course includes a study of the effects of various feeds on the meat and lard of hogs, and other animals; finishing stock for slaughter; slaughtering; dressing and curing of the meat. In the laboratory work the student is required to put into practice the methods taught. *Lecture, two hours; laboratory, two hours, second term. Tu.* 9-10; *F.* 2-4.

824. Principles of breeding: A course of study in the principles of breeding live stock, giving special attention to the problems of the practical breeder. Much attention is given to fecundity, inbreeding, cross-breeding, grading-up; and inheritance. Variation; its causes and benefits are studied. *Lectures, two hours, third term. Tu.* 8-9; *F.* 12-1.

825. Sheep judging: A course is given to make the student thoroughly familiar with the leading breeds of sheep, their conformation and uses. *Laboratory, two hours, third term. F.* 10-12.

SCHOOL AGRICULTURE.

JUNIOR AND HOME ECONOMICS EXTENSION. DEPARTMENT.

L. N. DUNCAN.
J. C. FORD.
MARY FEMINEAR.
MARY E. KEOWN.
*MARJORIE PRICE CAMPER.

This department was created July 1, 1914, and is a part of the agricultural extension work conducted in Alabama by co-operation between the College and the United States Department of Agriculture.

The special lines of work in this department are as follows:

Organization of boys' corn clubs.
Organization of boys' pig clubs.
Organization of girls' canning clubs.
Home demonstration work for farm women.
Poultry clubs.
Movable schools of agriculture.

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* In co-operation with the Alabama Girls' Technical Institute, Montevallo, Alabama.

DEPARTMENT OF PHARMACY.

PROFESSOR BLAKE.

The pharmacy department of this institution is a member in good standing of the American Conference of Pharmaceutical Faculties.

Three courses are offered—the two-year course leading to the degree *Graduate in Pharmacy;* the three-year course leading to the degree *Pharmaceutical Chemist;* and the four-year course leading to the degree *Bachelor of Science in Pharmacy.*

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than 250 drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, original habitat, constituents, medicinal action and dose.

FIRST YEAR.

401. (a). Pharmacy: Metrology; specific gravity; heat and applications of heat; fundamental operations of pharmacy; apparatus used in pharmaceutical processes, pharmaceutical arithmetic. *Three hours, first term. M. W. F.* 8-9.

(b). Pharmaceutical laboratory: Preparation of official and non-official galenicals, including the following classes of preparations: waters, spirits, liquors, mucilages, pills, elixirs, oleates, tinctures, etc. *Two hours, lectures, six hours laboratory, first and second terms. T.* 10-11, *Th.* 12-1, *Tu. Th.* 2-4, *S.* 11-1.

402. Pharmacognosy: The study of crude drugs; lectures, recitations, and practical work in identification. *Four hours, second and third terms. M. T. W. F.* 11-12.

406. Pharmaceutical chemistry: A study of the official salts, official title, chemical formula, reactions, description, physical identification, dosage, etc. *Three hours, second and third terms. M. W. F.* 8-9.

SECOND YEAR.

403 (a). Pharmaceutical technique and manufacturing pharmacy; official and non-official galenicals and chemical preparations; a thorough study of the U. S. P. and N. F. class work. *Three hours, entire session. M. W. F.* 12-1.

(b). Manufacture of more difficult galenicals and U. S. P. chemical preparations. *Twelve hours, first term. T. Th.* 2-6, *S.* 8-12.

(c). Alkaloidal assay. *Nine hours, second term. T. Th.* 2-4, *S.* 8-1.

(d). The compounding of fifty or more prescriptions and individual instruction. *Four hours, third term. T. Th.* 2-4.

(e). Pharmaceutical testing and drug analysis. *Five hours, third term. S.* 8-1.

404. Pharmacognosy: The study of crude drugs. This course is a continuation of course 402. *Three hours, first term. T. Th.* 10-11, *W.* 9-10.

405. Prescription reading and incompatibilities: Lectures and recitations. *Three hours, second and third terms. T. Th.* 10-11, *W.* 9-10.

407. United States Pharmacopoeia: This course is primarily a review intended to prepare the student to stand the State examinations. It covers all crude drugs, organic and inorganic chemicals and preparations found in the U. S. P. *Three hours, second and third terms. M. Th. F.* 9-10.

THIRD YEAR.

408 (a). Food and Drug Analysis: A study of the composition and method of analysis of leading food products, such as vinegars, fats and oils, dairy products, canned fruits and vegetables, alcoholic liquors, candies, preservatives, etc.

Drug analysis includes the chemical and microscopical examination of drug products that are especially liable to adulteration. *Twelve hours, first term. T. Th.* 2-6, *S.* 8-12.

408 (b). Organic Chemical Laboratory: The manufacture of not less than 35 organic chemicals. *Twelve hours, second and third terms. T. Th.* 2-6, *S.* 8-12.

TEXT AND REFERENCE BOOKS.

Arny's Principles of Pharmacy; Steven's Pharmacy and Dispensing, Kraemer's Botany and Pharmacognosy, Caspari's Treatise on Pharmacy; Sayre's Organic Materia Medica and Pharmacognosy, Culbreth's Materia Medica and Pharmacognosy, Scoville's The Art of Compounding, Beal's Prescription Practice, Dorland's Pocket Medical Dictionary, Ruddiman's Incompatibilities in Prescriptions, O'Connor's Commercial Pharmacy, Lyon's Pharmaceutical Assaying, United States Pharmacopoeia, United States Dispensatory, National Dispensatory, Prescott's Organic Analysis, Allen's Commercial Organic Analysis, Pharmaceutical Journals, Reports of American Pharmaceutical Association, Holland's Materia Medica and Toxicology.

SCHOOL OF AGRICULTURAL EDUCATION

PROFESSOR JUDD, Director
PROFESSOR BLASINGAME
PROFESSOR (to be selected)
PROFESSOR CRENSHAW
PROFESSOR FULLAN
PROFESSOR RUTLAND
PROFESSOR TEMPLETON
PROFESSOR PRICE.

The Department of Education was established in 1915 to meet an increasing general demand for teachers, principals, supervisors, and superintendents for the schools of Alabama. During the three-year period that has followed a large proportion of the total of the registrations have been from the College of Agriculture. This result is due in part to the fact that agriculture constitutes the major interest of the State, and to the further fact that for no other occupation, engaging large numbers of people, has so definite and extensive educational facilities been provided in our public schools. This provision for agricultural instruction has created a demand for teachers of Agriculture, and consequently for the training of teachers of Agriculture.

VOCATIONAL AGRICULTURE.

The need of trained Agricultural Teachers has been emphasized by the enactment by the National Congress of the Smith-Hughes Bill providing for the instruction of Vocational Agriture. By reason of the insight gained during these first three years of the Department, and because of the new conditions developed by the Federal statute, it has seemed wise to place the chief emphasis upon the training of teachers for Vocational Agriculture, and to make liberal provision for the same.

SCHOOL OF AGRICULTURAL EDUCATION.

The Department of Education organized to meet a general demand for the training of teachers, has, in consequence, been reorganized into a School of Agricultural Education, with a four-year curriculum. Provision is made in the senior year for specialization in the field of major interest. Upon the completion of the course there is granted the degree of Bachelor of Science in Agricultural Education.

REQUIREMENTS FOR DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION.

The requirements for the degree of Bachelor of Science in Agricultural Education are the same in general as for the Bache-

lor's degree in the other departments of the Institute. The curriculum of the Agricultural College, consisting of 176 half-year hours, with certain modifications, furnishes the basal subjects for the degree of Bachelor of Science in Agricultural Education. For certain of these subjects, 24 half-year hours in Education are required. The work of the senior year is largely elective. The electives are chosen from the curricula of the College of Agriculture and of the School of Education, with the advice and approval of the Director of the School of Education and the Dean of the College of Agriculture.

STATE TEACHER'S CERTIFICATE.

Students who graduate from the course in Agricultural Education will receive the degree of Bachelor of Science in Agricultural Education, and will be entitled to receive, upon payment of fee, a first grade State Teacher's Certificate, good for a period of five years and renewable for life.

DEMAND FOR TEACHERS.

The demand upon the College for teachers of Vocational Agriculture and the related sciences has been far greater than it could supply. Salaries are far more liberal than in the general field of teaching. Positions paying from $1,500 to $2,500 are not uncommon.

COURSES OF INSTRUCTION.

Below are listed the subjects of study in EDUCATION, and, in addition, certain other subjects which have been instituted to meet the special requirements of students in Vocational Agriculture and for the degree of Bachelor of Science in Agricultural Education.

Under the head of *Courses of Instruction, School of Agricultural Education, p.* 57, of this catalogue, will be found an arrangement of the required courses of study by years and by terms. Some option, however, may be exercised as to the year in which the courses in Education may be taken. Courses in Education not required are open to seniors as electives, provided the total number of half-year hours in Education, required and elective, shall not exceed 30.

1. Elementary Psychology
   An elementary course prerequisite to the later courses in Agricultural Education, two hours the session, four credits. Required.
2. Vocational Psychology
   A consideration of the questions of vocational guidance, management, and control of the human factor in vocational processes. Two hours, first term, one and one-half credits. Required.

3. Principles of Education
   Two hours, second and third terms, two and one-half credits. Required.
4. Organization and Administration of Rural Schools
   Two hours, first term, one credit. Elective.
5. Methods of Rural School Teaching
   Two hours, second term, one credit. Elective.
6. Supervision of Instruction in Rural Schools
   Two hours, third term, one credit. Elective.
7. Teaching High School Agriculture
   Three hours, the year, six credits. Required.
8. History of Agricultural Education
   Two hours, first term, one and one-half credits. Required.
9. Organization and Administration of Agricultural Instruction
   Two hours, second and third terms, two and a half credits. Required.
10. Agricultural Extension Teaching
    Two hours, first term, one credit. Required.
11. Agricultural Practice Teaching
    Two weeks of actual practice in teaching High School Agriculture, to be done in the second or third term of the senior year, one credit. Required.
12. History of the American High School
    Two hours, first half of first term, one credit. Elective.
13. Methods of Teaching in Secondary Schools
    Two hours, second half of first term and second and third terms, three credits. Elective.
14. The High School Pupil
    Two hours, first term, one and one-half credits. Required.
15. High School Curricula
    Two hours, second and third terms, two and one-half credits. Required.
16. Practicum in Agricultural Education
    Two hours, the year, five credits. Elective.
17. Organization and Administration of High School Education
    Two hours, first term, one and one-half credits. Elective.
18. Present Practices in High School Instruction
    Two hours, second and third terms, two and one-half credits. Elective.
19. General School Administration
    Two hours, the year, four credits. Elective.
20. Educational Measurements
    Two hours, first term, two credits. Elective.
21. School Surveys
    Two hours, second and third terms, two credits. Elective.
22. Educational Theory
    Two hours, first term, two credits. Elective.
23. Public School Curricula
    Two hours, second and third terms, two credits. Elective.
24. Agricultural Mathematics
    Three hours, the session, freshman class. Required.

25. Farm Carpentry
Six hours, first term, freshman class. Required.
26. Farm Blacksmithing
Six hours, second term, freshman class. Required.
27. Farm Implements and Machinery
Six hours, third term, freshman class. Required.
28. Agricultural Drawing
Six hours, first term, freshman class. Required.
29. Agricultural Surveying
Five hours, second and third terms, freshman class. Required.
30. Poultry Breeds and Breeding
Four hours, first term, freshman class. Required.
31. Poultry Feeds, Feeding, and Management
Four hours, second term, freshman class. Required.
32. Egg Production, Marketing, Incubation, and Breeding
Four hours, third term, freshman class. Required.
33. Home Projects and School Gardens
Three hours, the session, sophomore class. Required.
34. Rural Social Conditions
Three hours, first term, junior class. Required.
35. Principles of Rural Economics
Three hours, second and third terms, Junior class. Required.
36. Agricultural Composition
Three hours, first term, sophomore class. Required.
37. Oral Debate and Public Address in Agricultural Subject Matter
Three hours, second and third terms, sophomore class. Required.
38. Agricultural Journalism
One hour, the session, senior class. Required.
39. Agricultural Conference
Meets fortnightly during the senior year. Required.

COLLEGE OF VETERINARY MEDICINE AND SURGERY

By direction of the United States Civil Service Commission and Department of Agriculture, this college has been added to the list of accredited veterinary colleges, and placed in class A.

VETERINARY MEDICINE AND SURGERY.

PROFESSOR CARY.
ASSISTANT PROFESSOR MCADORY.
INSTRUCTOR FERGUSON.
INSTRUCTOR LEWALLEN.
INSTRUCTOR WILLIAMS.
LECTURER BAHNSEN.
LECTURER WHITE.
LECTURER ALLEN.

The four-year course in veterinary medicine and surgery leads to the degree of Doctor of Veterinary Medicine. It has been established to meet the demand of the young men of the South who desire to become educated veterinarians, and for students who desire to prepare for the study of human medicine.

EQUIPMENT.

The main veterinary biulding has an independent gas plant and a connected sewer system. It is supplied with electric lights and water. The building contains an office, two lecture rooms, a physiological laboratory, and a museum on the first floor; on the second floor are located two research laboratory rooms, a library and reading room, a large lecture room containing an incubator room, and all the necessary apparatus for pathological, histological, and bacteriological work.

A separate building is used as a house for small animals (rabbits, guinea pigs, pigeons, etc.) that are employed for experimental and demonstration work in bacteriology, histology, and physiology.

The anatomy division has a separate one-story brick building with good ventilation and extensive sky light. It is supplied with gas, water, and electric lights. The anatomy museum contains the skeletons of man, the horse, the ox, the sheep, and the pig, and models of limbs and special organs of man and the horse. It is also supplied with different lots of bones of the horse with dissected and dried limbs showing the relation and attachment of muscles. An hexagonal operating pavilion thirty-six feet in diameter is used for surgical

clinic and contains a simplicity operating table. It is supplied with water and electric lights and lockers for students.

The veterinary hospital contains five box stalls, four open single stalls, an office, and feed room, on the first floor; a large room for storing hay, fodder, and feed, is found on the upper floor. The veterinary department has for its exclusive use about six acres of land divided into lots, pens and paddocks. In one of the lots are located two large sheds, having a capacity for accommodating one hundred and twenty-five cattle or large animals. These sheds are used for isolation of animals affected with infectious diseases.

HOG CHOLERA SERUM PLANT.

The hog cholera serum plant occupies about twenty-five acres of land southwest of the College grounds. Upon this are located a large two-story brick and cement serum building (76 x 30), a brick and cement virus building (30 x 36), and a large hog barn (60 x 100) with cement floor. The rooms in the virus and serum buildings are sufficiently large to admit students in the veterinary medical and agricultural courses for instruction in inoculating hogs and in the various processes in making virus and serum. Some of the veterinary medical students work every day in the serum plant and thus become conversant with sterilizing, bleeding, hypering, inoculating and handling the virus, the serum and the hogs.

A well equipped slaughter house has just been completed for the use of the serum plant, the College and the Town of Auburn. It is available to veterinary students for practical experience in meat inspection.

COURSES OF STUDY.

The four-year veterinary course students take six terms of work in the department of animal husbandry and dairying, two terms of work in pharmacy; seven terms of work in the chemical department; two terms of work in botany, and one year's work in English. The facilities and equipment of these departments are excellent.

The veterinary course is especially strong in practical laboratory work.

1. In anatomy the work of dissection is continued through the first, second and third years. It is a well established fact that useful surgery or real anatomy cannot be acquired without careful and thorough work in the dissecting room. Special stress is given to comparative anatomy of the horse, ox, sheep, pig, dog and poultry.

2. Clinical laboratory work is also required throughout the course. The clinical work comes six days in the week and the

cases presented embrace mules, horses, cattle, sheep, dogs, poultry, and hogs. The variety is such as to illustrate a large number of diseases, surgical operations, and therapeutic applications.

3. The physiological laboratory is supplied with apparatus for tests and experiments in physiology.

4. The laboratory for pathology, histology, and bacteriology is extensive, and is fully fitted with the latest apparatus. This laboratory has been the outgrowth of twenty-five years of cumulative additions. The aim is to teach students to work in the laboratory rather than to memorize the printed page of the text-book.

5. In chemistry and toxicology the students work in one of the best of chemical laboratories.

6. In pharmacy the students work in practical pharmacy for five hours a week for two terms. In this they learn to recognize compounds and dispense drugs.

7. The animal husbandry department affords ample facilities for practice in feeding and judging cattle, sheep, hogs, horses and mules.

8. The dairy department gives practical laboratory work in dairy operations and in handling and feeding dairy cattle.

9. The botanical department is well equipped and gives excellent opportunity for laboratory work in poisonous and medicinal plants.

10. The subjects in the course of study are such as are required in the leading veterinary colleges of America. The course meets the requirements of the American Veterinary Medical Association and the Bureau of Animal Industry and United States Civil Service Commission. It is the aim to have the teaching staff meet the requirements of the best standards. The length of the course is four years of nine months each.

Graduates of the College of Veterinary Medicine are admitted by civil service examination to the appointments in the service of the Bureau of Animal Industry of the United States Department of Agriculture and to the army, and also to membership in the American Veterinary Association.

DESCRIPTION OF COURSES.

FRESHMAN CLASSES.

101. Physiology: The students in the special agricultural course, in all of the pharmacy courses, in the course in chemistry and metallurgy, and in the course of veterinary medicine and surgery, all study elementary physiology.

The aim of this course is to teach anatomy, histology, hygiene and sanitation. The instruction is given by lectures, demon-

strations and text-book. Text-book: Martin's Human Body. (Advanced). *Two hours, entire session.*

102. Veterinary Science: Prescribed for freshman veterinary students and juniors in animal husbandry. Elective for all agricultural courses. The aim of the instruction is to teach such lessons as will enable them to prevent many diseases on the farm by correct sanitation. At the same time they will be instructed in the ways and means of treating and handling the common diseases of farm animals. *Lectures two hours and clinics three hours. Veterinary students, first term; juniors in agriculture, entire session.*

103. General chemistry (Agr. 101): This consists of a series of lectures including a discussion of fundamental principles of chemical philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course, the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimetal illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form. *Four hours in class, six hours in laboratory, entire session.*

104. English (Ac. 102a)—Composition and rhetoric: The principles of exposition, narration and description are studied. The students are required to apply these principles in set themes once a week and in frequent exercises. As often as possible the instructor holds personal conferences with students in order to correct, assist and stimulate them. Text-book: Boynton's Principles of Composition. *Three hours, first term.*

105. English (Ac. 102b). American Literature: A survey of the history of American literature together with the study of select masterpieces. The recitations will be devoted chiefly to the discussion of the literature assigned for study, but the students will be required to master a concise history of the subject and to keep notes on both the history and the selections. Text-book: Newcomer's American Literature. *Three hours, second and third terms.*

106. Veterinary medicine: A course covering the internal diseases of solipeds, the horse, mule and ass. *Three hours, second and third terms.*

107. Anatomy: Consists chiefly of dissections with a few lectures and reviews. It covers during this year (a) Osteology, a study of the bones; (b) Arthrology, a study of the articula-

tions; (c) Myology, a study of the structure, form and relations, attachments and functions of muscles. *Ten hours, entire session.*

108. Histology: Treats of the minute or microscopic anatomy of the body. It includes fixing, imbedding, sectioning, mounting, staining and microscopic study of cellular and inter-cellular structure of tissues. It is taught by lectures, text-books and laboratory work. *Five hours, entire session.*

109. Judging dairy and beef cattle: It includes practical exercises in judging the breeds and types of dairy and beef cattle. This work is done by the Animal Husbandry Department. *Two hours, first term.*

110. Judging swine and sheep: This embraces practical exercises in determining the good and bad points of swine and sheep. *Two hours, second term.*

111. Judging horses and mules: This consists of lectures and practical exercises in judging the various breeds and classes of horses and mules. *Two hours, third term.*

112. Clinics: This is a poly-clinic where all kinds of cases and all kinds of animals are clinically examined, studied, operated on, and treated. *Three hours, entire session.*

SOPHOMORE CLASS.

113. Embryology: A study of the development of the embryo in its various stages from the fertilized ovum to the full grown embryo, and is designed to prepare students for the study of the principles of breeding and obstetrics. *Three hours, first term.*

114. Organic chemistry (Agr. 103b): This course, though somewhat more condensed, is similar to Agr. 103 (a), with the exception that the latter part of the course is devoted to a special study of fats, carbohydrates and proteins, with reference to their function in the life processes of plants and animals. *Three hours, first and second terms.*

115. Anatomy: This covers (a) Internal organs; (b) blood vessels, heart, lymph vessels and lymph glands; (c) the nervous system; (d) special sense organs; (e) genito-urinary organs; (f) the foot; (g) the larnyx. *Ten hours, entire session.*

116. Veterinary medicine: Embraces a study of the special pathology, etiology, symptoms, diagnosis and treatment of internal diseases of (a) cattle; (b) sheep and goats; (c) swine. *Three hours, entire session.*

117. Clinics: Surgical, internal and external diseases of all animals in the hospital and at the poly-clinic are examined, inspected and studied and recorded by the student. *Eight hours, entire session.*

varieties of garden and farm crops. *Lectures and recitations two hours, third term. Tu. and F.* 8-9.

Text and reference books: Principles of Plant Breeding (Gilbert and Bailey), Plant Breeding (Davenport), The Mutation Theory, Species and Varieties (DeVries).

610. Thesis: Students who expect to make their major work in horticulture are required to select a thesis subject not later than October 1st.

ENTOMOLOGY AND ZOOLOGY.

PROFESSOR HINDS.
ASSOCIATE PROFESSOR BUCK.

SOPHOMORE CLASS.

701. Zoology: A general course in zoology is required of all sophomore students in agriculture. The course is given in the first and second terms, and includes brief discussion of the relation of animals to plants and minerals, the nature of cells, the functions involved in life processes and of the classification and distribution of animals. The different animal groups are studied, beginning with the single celled animals, and leading gradually to the most complex forms. *Lectures, two hours; laboratory four hours, first and second terms. T. W. F.* 8-9; *W. Th. or F.* 2-4.

Text: Hegner's College Zoology. A laboratory fee of $1.00 is charged to pay the cost of material and laboratory sheets.

SENIOR CLASS.

702. Entomology: In accordance with the catalogue requirements the work in Entomology is taken by all senior students electing an agricultural group of courses, and by the special two-year agricultural students during their second year. In addition to this senior work, the subject is open to post-graduate students, who have completed the senior course satisfactorily, as an elective course leading to the degree of Master of Science. The senior work is given during the fall and spring terms only, while the post-graduate work continues during the college year.

The senior courses are designed to familiarize the students who anticipate engaging in agricultural work with the most important general facts of entomology, including studies on the structure of insects as applied to their identification; a systematic examination of the different groups, and of the most common insect pests of each group, with methods for their control.

132. Principles of breeding (Agr. 808): Embraces the principles and practices involved in the improvement of domestic animals. The subjects of reproduction, variation, selection, heredity, grading up, etc., will be discussed in their relations to practical breeding problems. *Two hours, first term.*

133. Dairying (Agr. 814): The study of the secretion, characters, composition and production of milk is made; proper methods of handling milk and cream for consumption, pasteurizing and sterilizing are covered. Students are taught how to use the Babcock tester, the lactometer, and to test for lactic acid, for purity and adulterants. They are drilled in butter making and in standardizing milk and cream. Familiarity with the construction, care and operation of the leading makes of cream separators and other dairy equipment is required. *Four hours, second term.*

134. Feeding: Embraces the food requirements for different animals; calculations and mixing of rations, using the various concentrates, roughages, etc. *Three hours, third term.*

135. Surgery: This will be a continuation of special surgery, foot diseases and lameness. *Two hours, first term.*

136. Clinics: Includes special and poly-clinic cases in surgery, internal medicine, infectious diseases, lameness, etc. *Eight hours, entire session.*

137. Pathology: Deals with the anatomy and histology of diseased tissues and organs. The cellular and inter-cellular changes that occur in disease are studied in text-book and lectures, and in the laboratory diseased cells and tissues are examined macroscopically and microscopically. *Seven hours, first term; eight hours, second term.*

138. Meat inspection: A study of the anti-mortem and post-mortem conditions of healthy and diseased animals. The decomposition, putrefaction and fermentation and adulteration of meats are studied. This course embraces lectures, text-book work and laboratory work in class room and slaughter house. Auburn now has a well built and equipped slaughter house. *Three hours, first and second terms.*

139. Milk inspection: Includes a study of diseases of dairy cattle (tuberculosis, udder diseases, etc.,) filth, bacteria and adulterants of milk; feed, water supply, dairy barns, pens and pastures; dairy cans, buckets, bottles, wagons pasteurizers, sterilizers, milk houses, and milkers. *Five hours, third term.*

140. Parasites: This course deals with the plant and animal parasites that infest man and animals. The hosts, anatomy, classification, modes of life, life history, toxic and other effects on hosts are studied. Specimens are collected, classified, mounted or preserved. *Three hours, second and third terms.*

141. Surgical exercises: This consists of a series of practical exercises covering the most common surgical operations. *Three hours, third term.*

142. Urinalysis: This covers a laboratory course in the chemical analysis of the urine of animals. *Three hours, third term.*

143. Thesis: Every student must develop a thesis on some veterinary subject, and this thesis must contain some original investigation. *Three to four hours, entire session.*

144. Toxicology (Agr. 110e): Embraces a study of the actions of poisons on animals, and a laboratory course in the official tests for the different poisons. *Seven hours, third term.*

TEXT AND REFERENCE BOOKS.

General Chemistry—McPherson and Henderson.

Organic Chemistry—Moore.

Physiology Recitations—Martin's Human Body.

Physiology Laboratory—Fish's Elementary Exercises.

Veterinary Physiology—Smith's Manual of Veterinary Physiology.

English—Boynton; Newcomer.

Anatomy—Sisson's Comparative Anatomy; Chauveau.

Clinical Laboratory—Clinic Note Books.

Histology—Bailey; Lectures.

Embryology—Prentiss; Bailey; Lectures.

Principles of Breeding—Marshall.

Feeding Live Stock—Henry; Smith; Jordan.

Livestock Judging—Craig; Plumb; Lectures.

Dairying—Wing.

Botany—Gray; Pammel; Lectures.

Pharmacy—Stevens; Lectures.

Bacteriology—Moore; Lectures.

Pathology—Kinsley; Zeigler; Kitt, Adami.

Obstetrics—Williams; DeBruin; Fleming; Dalrymple.

General Surgery—Frohner; Moeller; Dollar; Lectures.

Special Surgery—Moeller; Merillat; Frohner, Reeks; Lectures.

Surgical Exercises—W. L. Williams.

Materia Medica and Therapeutics—Frohner; Wilcox; Winslow; Fish; Quitman.

Diseases of the Dog—Muller-Glass.

Veterinary Medicine—Law, Vols. 1, 2, 3; Moussu; Friedberger and Frohner; Huytra and Marek.

Diseases of Cattle—Dollar; Moussu; U. S. Department of Agriculture.

Diseases of Swine—Kinsley.

Diseases of Poultry—Kaupp.

Infectious Diseases—Moore; Law, Vol. 4.

Parasites—Neumann; Law, Vol. 5; Koupp.
Meat Inspection—Edelmann; Mohler-Eichhorn; Ostertag.
Milk Inspection—Ernest-Moller-Eichhorn; Conn.
Lameness—LaCroix.
Toxicology—Tanner; Fish.
Urine Analysis—Fish.
Restraint of Animals—White.
Castration of Animals—White.

GENERAL INFORMATION

COURSES FOR WOMEN.

With the entry of women into new professions and vocations under modern social conditions, it has seemed an obligation upon the College to make provision for women in the various professional and technical courses, as well as in the academic course of the College, and to make special provision for housing women students.

NEW PROFESSIONS AND OCCUPATIONS FOR WOMEN.

High School Teaching.—Under conditions brought about by the war, under which our young men have gone to the army, women are being called in larger and larger numbers into teaching positions in high schools. Under modern industrial conditions the high school courses of study have undergone marked changes. The old type academic college no longer furnishes adequate training for all high school teachers. It was in large measure due to the recognition of this latter fact that the Department of Education of this Institute was established. In consideration of the facilities for offering training for teachers through the school of Education and in view of the fact that women must in larger measure be relied upon to give high school instruction, it has seemed appropriate to call the attention of suitable women in the State to the facilities offered in the school of Education, and in the various colleges of the Institute.

Architecture and Pharmacy.—Architecture and Pharmacy have proven attractive professions for women. The work of these two professions is admirably adapted to the pursuit of women. The attention of young women of suitable age and preparation is called to the courses of study in the Department of Architecture and Pharmacy in the Institute.

Agriculture.—Agriculture is beginning to draw the attention of women. Many women desire to master those principles and processes which will enable them to direct the various activities of their home farm. Others have a more limited interest and wish only to prepare themselves for prosecuting some single phase of farm life, such as poultry, dairying, bee culture, or horticulture. Women who are interested in these fields are advised to consider the courses offered in the College of Agriculture.

ELECTIVES FOR WOMEN.

The Institute has no department of Home Economics, but recognizes the value of training in Home Economics. Women

students, therefore, who have had Home Economics training of college grade in other institutions, may offer credits in the same in lieu of courses prescribed in the various courses of study in this institution. Such substitutions, however, shall be upon the approval of the Dean.

Other electives may be arranged with the approval of the appropriate Dean, provided such electives are consonant with a definite purpose in training.

HOME FOR WOMEN STUDENTS.

For women students room and board will be arranged under the best home conditions. The culture and refinement so essential to the proper environment of young women will receive especial attention in selecting a home for them.

CADET BAND

A. L. THOMAS, Bandmaster.

Three musical organizations are maintained—the band, the orchestra, and the glee club. Membership in these organizations is open to any student who has musical talent.

The band is maintained by the college for students who desire to develop their musical ability and for those who wish to learn music. It furnishes music for all colleges exercises, and takes part in military manoeuvers. Regular and individual instruction is given free of charge during the first term, embodying the rudiments of music and general musical information in conjunction with the practical instruction on the instrument. Public concerts are given weekly during the second term, and engagements elsewhere are usually arranged.

A gold medal is given each year by the bandmaster to the member who makes the best record.

The orchestra is an organization for musical recreation, and members are carefully selected by the director according to their musical ability.

The glee club, comprising the quartet, chorus, and stringed instruments is a student organization. The services of a musician are secured to assist with the instruction and training of the quartet and chorus. Two concerts are given at the college and concert tours are arranged during the second and third terms.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This association is regularly organized and a suite of well furnished rooms has been secured for its exclusive use. Through its weekly meetings and Bible Study Classes it exerts a wholesome Christian influence among the students.

Students are advised to unite with the association when they enter the college.

The ladies of the different churches in Auburn are organized into an auxiliary association to the Y. M. C. A. of the college.

LITERARY SOCIETIES.

There are two literary societies connected with the Institute —the Wirt and the Websterian. Each has a hall in the main building. These societies hold celebrations on the evenings of Thanksgiving and 22nd of February.

To encourage the literary societies the trustees have directed that a medal be awarded at Commencement to the member of each society who is both efficient and regular in attendance, and who is the best debater. The method of selection is determined by the faculty.

SOCIETY OF THE ALUMNI.

The annual alumni oration is delivered by a member of the society in Langdon Hall on Alumni Day, Monday of Commencement week.

OFFICERS OF THE ALUMNI ASSOCIATION.

Clarence N. Ousley, '81, Washington, D. C.----------Orator
Thomas Bragg, '01, Auburn, Ala.----------President
H. M. Martin, '14, Auburn, Ala.---------Secretary and Treasurer

ENGINEERING SOCIETY.

All students in the courses of engineering and architecture are eligible for membership in the Engineering Society. Meetings are held twice a month, and the chief purpose of the society is to promote personal fellowship among the members, and closer affiliation with practical engineers. Prominent engineers in all lines are invited to address the society from time to time upon subjects connected with their work. At other meetings the program is supplied by the student members, thus giving opportunity for the students in one department to become somewhat familiar with the problems met with in other lines of engineering.

Suitable quarters have been provided for the society in the new Broun Engineering Hall. No regular dues are required of the members, but an occasional assessment is made to cover necessary expenses.

ARCHITECTURAL ASSOCIATION.

The Architectural Association is open to all members of the college who take work in the department of architecture. Biweekly meetings are held in the architectural library, and papers presented on subjects of professional interest, not directly covered in regular courses; the discussions that follow are always lively ones. Current articles in the technical jour-

nals are also taken up. Nothing could furnish a more striking example of the enthusiastic attitude shown by architectural students everywhere toward their chosen work, than these gatherings of the architectural association.

AGRICULTURAL CLUB.

The Agricultural Club was organized in 1907. All students interested in agriculture and the agricultural sciences are eligible for membership. The members of the Agricultural Faculty take an active part in the work of the club. Meetings are held once a week, and an effort is made to promote interest in all lines of agriculture, to develop a spirit of good fellowship among the students of the course, and bring them in contact with prominent workers of the science as opportunity offers to present them on the regular program.

Meetings are held in the club rooms in Comer Agricultural Hall.

VETERINARY MEDICAL ASSOCIATION.

The Veterinary Medical Association was organized in 1907. The meetings are held bi-weekly in the veterinary building. Medical subjects are discussed by the members or by some invited speaker or member of the veterinary faculty. All students of the Veterinary College are eligible to membership. The objects of the association are fraternal, intellectual and cultural. The annual banquet of this association is an occasion of good fellowship for the students, faculty, and veterinary alumni.

GYMNASIUM AND ATHLETIC FIELD.

The new Alumni Gymnasium offers improved facilities for complete physical training in outdoor and indoor work. The college authorities attach due importance to the value of robust physical health. Military drill according to the Federal Law is required of all able-bodied students, and ample opportunity is also offered for work in the gymnasium and field sports. The aim of the athletic authorities is to develop, not only a set of highly trained athletic experts in particular fields of sports, but to interest each individual student in the care and development of the body through some form of athletic activity. While, therefore, every effort is made to retain a high standard of athletic efficiency in various representative teams, every member of the "Auburn" student body is encouraged to gratify his love for games and sports, as well as to assimilate the "Auburn Spirit" in its intensest form; a spirit splendidly exemplified by the Alumni in making possible this handsome Gymnasium. This beautiful athletic home ranks "Auburn" as

(c). Alkaloidal assay. *Nine hours, second term. T. Th.* 2-4, *S.* 8-1.

(d). The compounding of fifty or more prescriptions and individual instruction. *Four hours, third term. T. Th.* 2-4.

(e). Pharmaceutical testing and drug analysis. *Five hours, third term. S.* 8-1.

404. Pharmacognosy: The study of crude drugs. This course is a continuation of course 402. *Three hours, first term. T. Th.* 10-11, *W.* 9-10.

405. Prescription reading and incompatibilities: Lectures and recitations. *Three hours, second and third terms. T. Th.* 10-11, *W.* 9-10.

407. United States Pharmacopoeia: This course is primarily a review intended to prepare the student to stand the State examinations. It covers all crude drugs, organic and inorganic chemicals and preparations found in the U. S. P. *Three hours, second and third terms. M. Th. F.* 9-10.

THIRD YEAR.

408 (a). Food and Drug Analysis: A study of the composition and method of analysis of leading food products, such as vinegars, fats and oils, dairy products, canned fruits and vegetables, alcoholic liquors, candies, preservatives, etc.

Drug analysis includes the chemical and microscopical examination of drug products that are especially liable to adulteration. *Twelve hours, first term. T. Th.* 2-6, *S.* 8-12.

408 (b). Organic Chemical Laboratory: The manufacture of not less than 35 organic chemicals. *Twelve hours, second and third terms. T. Th.* 2-6, *S.* 8-12.

TEXT AND REFERENCE BOOKS.

Arny's Principles of Pharmacy; Steven's Pharmacy and Dispensing, Kraemer's Botany and Pharmacognosy, Caspari's Treatise on Pharmacy; Sayre's Organic Materia Medica and Pharmacognosy, Culbreth's Materia Medica and Pharmacognosy, Scoville's The Art of Compounding, Beal's Prescription Practice, Dorland's Pocket Medical Dictionary, Ruddiman's Incompatibilities in Prescriptions, O'Connor's Commercial Pharmacy, Lyon's Pharmaceutical Assaying, United States Pharmacopoeia, United States Dispensatory, National Dispensatory, Prescott's Organic Analysis, Allen's Commercial Organic Analysis, Pharmaceutical Journals, Reports of American Pharmaceutical Association, Holland's Materia Medica and Toxicology.

SCHOOL OF AGRICULTURAL EDUCATION

PROFESSOR JUDD, Director
PROFESSOR BLASINGAME
PROFESSOR (to be selected)
PROFESSOR CRENSHAW
PROFESSOR FULLAN
PROFESSOR RUTLAND
PROFESSOR TEMPLETON
PROFESSOR PRICE.

The Department of Education was established in 1915 to meet an increasing general demand for teachers, principals, supervisors, and superintendents for the schools of Alabama. During the three-year period that has followed a large proportion of the total of the registrations have been from the College of Agriculture. This result is due in part to the fact that agriculture constitutes the major interest of the State, and to the further fact that for no other occupation, engaging large numbers of people, has so definite and extensive educational facilities been provided in our public schools. This provision for agricultural instruction has created a demand for teachers of Agriculture, and consequently for the training of teachers of Agriculture.

VOCATIONAL AGRICULTURE.

The need of trained Agricultural Teachers has been emphasized by the enactment by the National Congress of the Smith-Hughes Bill providing for the instruction of Vocational Agriture. By reason of the insight gained during these first three years of the Department, and because of the new conditions developed by the Federal statute, it has seemed wise to place the chief emphasis upon the training of teachers for Vocational Agriculture, and to make liberal provision for the same.

SCHOOL OF AGRICULTURAL EDUCATION.

The Department of Education organized to meet a general demand for the training of teachers, has, in consequence, been reorganized into a School of Agricultural Education, with a four-year curriculum. Provision is made in the senior year for specialization in the field of major interest. Upon the completion of the course there is granted the degree of Bachelor of Science in Agricultural Education.

REQUIREMENTS FOR DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION.

The requirements for the degree of Bachelor of Science in Agricultural Education are the same in general as for the Bache-

lor's degree in the other departments of the Institute. The curriculum of the Agricultural College, consisting of 176 half-year hours, with certain modifications, furnishes the basal subjects for the degree of Bachelor of Science in Agricultural Education. For certain of these subjects, 24 half-year hours in Education are required. The work of the senior year is largely elective. The electives are chosen from the curricula of the College of Agriculture and of the School of Education, with the advice and approval of the Director of the School of Education and the Dean of the College of Agriculture.

STATE TEACHER'S CERTIFICATE.

Students who graduate from the course in Agricultural Education will receive the degree of Bachelor of Science in Agricultural Education, and will be entitled to receive, upon payment of fee, a first grade State Teacher's Certificate, good for a period of five years and renewable for life.

DEMAND FOR TEACHERS.

The demand upon the College for teachers of Vocational Agriculture and the related sciences has been far greater than it could supply. Salaries are far more liberal than in the general field of teaching. Positions paying from $1,500 to $2,500 are not uncommon.

COURSES OF INSTRUCTION.

Below are listed the subjects of study in EDUCATION, and, in addition, certain other subjects which have been instituted to meet the special requirements of students in Vocational Agriculture and for the degree of Bachelor of Science in Agricultural Education.

Under the head of *Courses of Instruction, School of Agricultural Education, p.* 57, of this catalogue, will be found an arrangement of the required courses of study by years and by terms. Some option, however, may be exercised as to the year in which the courses in Education may be taken. Courses in Education not required are open to seniors as electives, provided the total number of half-year hours in Education, required and elective, shall not exceed 30.

1. Elementary Psychology
   An elementary course prerequisite to the later courses in Agricultural Education, two hours the session, four credits. Required.
2. Vocational Psychology
   A consideration of the questions of vocational guidance, management, and control of the human factor in vocational processes. Two hours, first term, one and one-half credits. Required.

3. Principles of Education
   Two hours, second and third terms, two and one-half credits. Required.
4. Organization and Administration of Rural Schools
   Two hours, first term, one credit. Elective.
5. Methods of Rural School Teaching
   Two hours, second term, one credit. Elective.
6. Supervision of Instruction in Rural Schools
   Two hours, third term, one credit. Elective.
7. Teaching High School Agriculture
   Three hours, the year, six credits. Required.
8. History of Agricultural Education
   Two hours, first term, one and one-half credits. Required.
9. Organization and Administration of Agricultural Instruction
   Two hours, second and third terms, two and a half credits. Required.
10. Agricultural Extension Teaching
    Two hours, first term, one credit. Required.
11. Agricultural Practice Teaching
    Two weeks of actual practice in teaching High School Agriculture, to be done in the second or third term of the senior year, one credit. Required.
12. History of the American High School
    Two hours, first half of first term, one credit. Elective.
13. Methods of Teaching in Secondary Schools
    Two hours, second half of first term and second and third terms, three credits. Elective.
14. The High School Pupil
    Two hours, first term, one and one-half credits. Required.
15. High School Curricula
    Two hours, second and third terms, two and one-half credits. Required.
16. Practicum in Agricultural Education
    Two hours, the year, five credits. Elective.
17. Organization and Administration of High School Education
    Two hours, first term, one and one-half credits. Elective.
18. Present Practices in High School Instruction
    Two hours, second and third terms, two and one-half credits. Elective.
19. General School Administration
    Two hours, the year, four credits. Elective.
20. Educational Measurements
    Two hours, first term, two credits. Elective.
21. School Surveys
    Two hours, second and third terms, two credits. Elective.
22. Educational Theory
    Two hours, first term, two credits. Elective.
23. Public School Curricula
    Two hours, second and third terms, two credits. Elective.
24. Agricultural Mathematics
    Three hours, the session, freshman class. Required.

25. Farm Carpentry
Six hours, first term, freshman class. Required.
26. Farm Blacksmithing
Six hours, second term, freshman class. Required.
27. Farm Implements and Machinery
Six hours, third term, freshman class. Required.
28. Agricultural Drawing
Six hours, first term, freshman class. Required.
29. Agricultural Surveying
Five hours, second and third terms, freshman class. Required.
30. Poultry Breeds and Breeding
Four hours, first term, freshman class. Required.
31. Poultry Feeds, Feeding, and Management
Four hours, second term, freshman class. Required.
32. Egg Production, Marketing, Incubation, and Breeding
Four hours, third term, freshman class. Required.
33. Home Projects and School Gardens
Three hours, the session, sophomore class. Required.
34. Rural Social Conditions
Three hours, first term, junior class. Required.
35. Principles of Rural Economics
Three hours, second and third terms, Junior class. Required.
36. Agricultural Composition
Three hours, first term, sophomore class. Required.
37. Oral Debate and Public Address in Agricultural Subject Matter
Three hours, second and third terms, sophomore class. Required.
38. Agricultural Journalism
One hour, the session, senior class. Required.
39. Agricultural Conference
Meets fortnightly during the senior year. Required.

COLLEGE OF VETERINARY MEDICINE AND SURGERY

By direction of the United States Civil Service Commission and Department of Agriculture, this college has been added to the list of accredited veterinary colleges, and placed in class A.

VETERINARY MEDICINE AND SURGERY.

PROFESSOR CARY.
ASSISTANT PROFESSOR MCADORY.
INSTRUCTOR FERGUSON.
INSTRUCTOR LEWALLEN.
INSTRUCTOR WILLIAMS.
LECTURER BAHNSEN.
LECTURER WHITE.
LECTURER ALLEN.

The four-year course in veterinary medicine and surgery leads to the degree of Doctor of Veterinary Medicine. It has been established to meet the demand of the young men of the South who desire to become educated veterinarians, and for students who desire to prepare for the study of human medicine.

EQUIPMENT.

The main veterinary biulding has an independent gas plant and a connected sewer system. It is supplied with electric lights and water. The building contains an office, two lecture rooms, a physiological laboratory, and a museum on the first floor; on the second floor are located two research laboratory rooms, a library and reading room, a large lecture room containing an incubator room, and all the necessary apparatus for pathological, histological, and bacteriological work.

A separate building is used as a house for small animals (rabbits, guinea pigs, pigeons, etc.) that are employed for experimental and demonstration work in bacteriology, histology, and physiology.

The anatomy division has a separate one-story brick building with good ventilation and extensive sky light. It is supplied with gas, water, and electric lights. The anatomy museum contains the skeletons of man, the horse, the ox, the sheep, and the pig, and models of limbs and special organs of man and the horse. It is also supplied with different lots of bones of the horse with dissected and dried limbs showing the relation and attachment of muscles. An hexagonal operating pavilion thirty-six feet in diameter is used for surgical

clinic and contains a simplicity operating table. It is supplied with water and electric lights and lockers for students.

The veterinary hospital contains five box stalls, four open single stalls, an office, and feed room, on the first floor; a large room for storing hay, fodder, and feed, is found on the upper floor. The veterinary department has for its exclusive use about six acres of land divided into lots, pens and paddocks. In one of the lots are located two large sheds, having a capacity for accommodating one hundred and twenty-five cattle or large animals. These sheds are used for isolation of animals affected with infectious diseases.

HOG CHOLERA SERUM PLANT.

The hog cholera serum plant occupies about twenty-five acres of land southwest of the College grounds. Upon this are located a large two-story brick and cement serum building (76 x 30), a brick and cement virus building (30 x 36), and a large hog barn (60 x 100) with cement floor. The rooms in the virus and serum buildings are sufficiently large to admit students in the veterinary medical and agricultural courses for instruction in inoculating hogs and in the various processes in making virus and serum. Some of the veterinary medical students work every day in the serum plant and thus become conversant with sterilizing, bleeding, hypering, inoculating and handling the virus, the serum and the hogs.

A well equipped slaughter house has just been completed for the use of the serum plant, the College and the Town of Auburn. It is available to veterinary students for practical experience in meat inspection.

COURSES OF STUDY.

The four-year veterinary course students take six terms of work in the department of animal husbandry and dairying, two terms of work in pharmacy; seven terms of work in the chemical department; two terms of work in botany, and one year's work in English. The facilities and equipment of these departments are excellent.

The veterinary course is especially strong in practical laboratory work.

1. In anatomy the work of dissection is continued through the first, second and third years. It is a well established fact that useful surgery or real anatomy cannot be acquired without careful and thorough work in the dissecting room. Special stress is given to comparative anatomy of the horse, ox, sheep, pig, dog and poultry.

2. Clinical laboratory work is also required throughout the course. The clinical work comes six days in the week and the

cases presented embrace mules, horses, cattle, sheep, dogs, poultry, and hogs. The variety is such as to illustrate a large number of diseases, surgical operations, and therapeutic applications.

3. The physiological laboratory is supplied with apparatus for tests and experiments in physiology.

4. The laboratory for pathology, histology, and bacteriology is extensive, and is fully fitted with the latest apparatus. This laboratory has been the outgrowth of twenty-five years of cumulative additions. The aim is to teach students to work in the laboratory rather than to memorize the printed page of the text-book.

5. In chemistry and toxicology the students work in one of the best of chemical laboratories.

6. In pharmacy the students work in practical pharmacy for five hours a week for two terms. In this they learn to recognize compounds and dispense drugs.

7. The animal husbandry department affords ample facilities for practice in feeding and judging cattle, sheep, hogs, horses and mules.

8. The dairy department gives practical laboratory work in dairy operations and in handling and feeding dairy cattle.

9. The botanical department is well equipped and gives excellent opportunity for laboratory work in poisonous and medicinal plants.

10. The subjects in the course of study are such as are required in the leading veterinary colleges of America. The course meets the requirements of the American Veterinary Medical Association and the Bureau of Animal Industry and United States Civil Service Commission. It is the aim to have the teaching staff meet the requirements of the best standards. The length of the course is four years of nine months each.

Graduates of the College of Veterinary Medicine are admitted by civil service examination to the appointments in the service of the Bureau of Animal Industry of the United States Department of Agriculture and to the army, and also to membership in the American Veterinary Association.

DESCRIPTION OF COURSES.

FRESHMAN CLASSES.

101. Physiology: The students in the special agricultural course, in all of the pharmacy courses, in the course in chemistry and metallurgy, and in the course of veterinary medicine and surgery, all study elementary physiology.

The aim of this course is to teach anatomy, histology, hygiene and sanitation. The instruction is given by lectures, demon-

strations and text-book. Text-book: Martin's Human Body. (Advanced). *Two hours, entire session.*

102. Veterinary Science: Prescribed for freshman veterinary students and juniors in animal husbandry. Elective for all agricultural courses. The aim of the instruction is to teach such lessons as will enable them to prevent many diseases on the farm by correct sanitation. At the same time they will be instructed in the ways and means of treating and handling the common diseases of farm animals. *Lectures two hours and clinics three hours. Veterinary students, first term; juniors in agriculture, entire session.*

103. General chemistry (Agr. 101): This consists of a series of lectures including a discussion of fundamental principles of chemical philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course, the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimetal illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form. *Four hours in class, six hours in laboratory, entire session.*

104. English (Ac. 102a)—Composition and rhetoric: The principles of exposition, narration and description are studied. The students are required to apply these principles in set themes once a week and in frequent exercises. As often as possible the instructor holds personal conferences with students in order to correct, assist and stimulate them. Text-book: Boynton's Principles of Composition. *Three hours, first term.*

105. English (Ac. 102b). American Literature: A survey of the history of American literature together with the study of select masterpieces. The recitations will be devoted chiefly to the discussion of the literature assigned for study, but the students will be required to master a concise history of the subject and to keep notes on both the history and the selections. Text-book: Newcomer's American Literature. *Three hours, second and third terms.*

106. Veterinary medicine: A course covering the internal diseases of solipeds, the horse, mule and ass. *Three hours, second and third terms.*

107. Anatomy: Consists chiefly of dissections with a few lectures and reviews. It covers during this year (a) Osteology, a study of the bones; (b) Arthrology, a study of the articula-

tions; (c) Myology, a study of the structure, form and relations, attachments and functions of muscles. *Ten hours, entire session.*

108. Histology: Treats of the minute or microscopic anatomy of the body. It includes fixing, imbedding, sectioning, mounting, staining and microscopic study of cellular and inter-cellular structure of tissues. It is taught by lectures, text-books and laboratory work. *Five hours, entire session.*

109. Judging dairy and beef cattle: It includes practical exercises in judging the breeds and types of dairy and beef cattle. This work is done by the Animal Husbandry Department. *Two hours, first term.*

110. Judging swine and sheep: This embraces practical exercises in determining the good and bad points of swine and sheep. *Two hours, second term.*

111. Judging horses and mules: This consists of lectures and practical exercises in judging the various breeds and classes of horses and mules. *Two hours, third term.*

112. Clinics: This is a poly-clinic where all kinds of cases and all kinds of animals are clinically examined, studied, operated on, and treated. *Three hours, entire session.*

SOPHOMORE CLASS.

113. Embryology: A study of the development of the embryo in its various stages from the fertilized ovum to the full grown embryo, and is designed to prepare students for the study of the principles of breeding and obstetrics. *Three hours, first term.*

114. Organic chemistry (Agr. 103b): This course, though somewhat more condensed, is similar to Agr. 103 (a), with the exception that the latter part of the course is devoted to a special study of fats, carbohydrates and proteins, with reference to their function in the life processes of plants and animals. *Three hours, first and second terms.*

115. Anatomy: This covers (a) Internal organs; (b) blood vessels, heart, lymph vessels and lymph glands; (c) the nervous system; (d) special sense organs; (e) genito-urinary organs; (f) the foot; (g) the larnyx. *Ten hours, entire session.*

116. Veterinary medicine: Embraces a study of the special pathology, etiology, symptoms, diagnosis and treatment of internal diseases of (a) cattle; (b) sheep and goats; (c) swine. *Three hours, entire session.*

117. Clinics: Surgical, internal and external diseases of all animals in the hospital and at the poly-clinic are examined, inspected and studied and recorded by the student. *Eight hours, entire session.*

118. Bacteriology: Includes a study of the pathogenic bacteria, their classification, modes of reproduction, cultural and staining characters, habitat, methods of causing disease, etc. *Six hours, entire session.*

119. Physiological chemistry: Treats of the chemistry of sera, globulins, proteids in the other organic bodies or compounds found in animal bodies. *Four hours, third term.*

120. Pharmacy: Treats of the physical and chemical characters of drugs, preparation of various official drugs and the compounding of prescriptions employed in veterinary practice. *Ten hours, second and third terms.*

121. Botany: A study of poisonous and medicinal plants. *Five hours, third term.*

JUNIOR CLASS.

122. Surgery: This embraces general and special surgery of domestic animals. *Four hours, entire year.*

123. Obstetrics: It embraces the study of the normal and diseased conditions of the animal body during pregnancy. *Two hours, entire session.*

124. Anatomy: Embraces the comparative anatomy of the (a) ox; (b) sheep; (c) swine; (d) dog; (e) cat; (f) poultry. *Eight hours, entire session.*

125. Botany. A continuation of No. 121: A practical study of poisonous and medicinal plants. *Six hours, first term.*

126. Veterinary medicine: This course treats of the internal diseases of the (a) dog; (b) the cat; (c) poultry. *Three hours, first term; four hours, second and third terms.*

127. Veterinary physiology: Treats of normal actions or functions of the organs and apparatus of the bodies of domestic animals in health. *Three hours, first and third terms; four hours, second term.*

128. Clinics: A study of general and special surgical and medical cases presented at the hospital and poly-clinic. *Ten hours, entire session.*

129. Infectious diseases: Embraces a study of the causes, modes of transmission, methods of diagnosis and prevention of communicable diseases of domestic animals. *Three hours, second and third terms.*

SENIOR CLASS.

131. Therapeutics: A study of all materials used in disease and considers the action of these materials or drugs during health and in disease, and their applications or uses in diseases. *Five hours, first and second terms.*

132. Principles of breeding (Agr. 808): Embraces the principles and practices involved in the improvement of domestic animals. The subjects of reproduction, variation, selection, heredity, grading up, etc., will be discussed in their relations to practical breeding problems. *Two hours, first term.*

133. Dairying (Agr. 814): The study of the secretion, characters, composition and production of milk is made; proper methods of handling milk and cream for consumption, pasteurizing and sterilizing are covered. Students are taught how to use the Babcock tester, the lactometer, and to test for lactic acid, for purity and adulterants. They are drilled in butter making and in standardizing milk and cream. Familiarity with the construction, care and operation of the leading makes of cream separators and other dairy equipment is required. *Four hours, second term.*

134. Feeding: Embraces the food requirements for different animals; calculations and mixing of rations, using the various concentrates, roughages, etc. *Three hours, third term.*

135. Surgery: This will be a continuation of special surgery, foot diseases and lameness. *Two hours, first term.*

136. Clinics: Includes special and poly-clinic cases in surgery, internal medicine, infectious diseases, lameness, etc. *Eight hours, entire session.*

137. Pathology: Deals with the anatomy and histology of diseased tissues and organs. The cellular and inter-cellular changes that occur in disease are studied in text-book and lectures, and in the laboratory diseased cells and tissues are examined macroscopically and microscopically. *Seven hours, first term; eight hours, second term.*

138. Meat inspection: A study of the anti-mortem and post-mortem conditions of healthy and diseased animals. The decomposition, putrefaction and fermentation and adulteration of meats are studied. This course embraces lectures, text-book work and laboratory work in class room and slaughter house. Auburn now has a well built and equipped slaughter house. *Three hours, first and second terms.*

139. Milk inspection: Includes a study of diseases of dairy cattle (tuberculosis, udder diseases, etc.,) filth, bacteria and adulterants of milk; feed, water supply, dairy barns, pens and pastures; dairy cans, buckets, bottles, wagons pasteurizers, sterilizers, milk houses, and milkers. *Five hours, third term.*

140. Parasites: This course deals with the plant and animal parasites that infest man and animals. The hosts, anatomy, classification, modes of life, life history, toxic and other effects on hosts are studied. Specimens are collected, classified, mounted or preserved. *Three hours, second and third terms.*

141. Surgical exercises: This consists of a series of practical exercises covering the most common surgical operations. *Three hours, third term.*

142. Urinalysis: This covers a laboratory course in the chemical analysis of the urine of animals. *Three hours, third term.*

143. Thesis: Every student must develop a thesis on some veterinary subject, and this thesis must contain some original investigation. *Three to four hours, entire session.*

144. Toxicology (Agr. 110e): Embraces a study of the actions of poisons on animals, and a laboratory course in the official tests for the different poisons. *Seven hours, third term.*

TEXT AND REFERENCE BOOKS.

General Chemistry—McPherson and Henderson.

Organic Chemistry—Moore.

Physiology Recitations—Martin's Human Body.

Physiology Laboratory—Fish's Elementary Exercises.

Veterinary Physiology—Smith's Manual of Veterinary Physiology.

English—Boynton; Newcomer.

Anatomy—Sisson's Comparative Anatomy; Chauveau.

Clinical Laboratory—Clinic Note Books.

Histology—Bailey; Lectures.

Embryology—Prentiss; Bailey; Lectures.

Principles of Breeding—Marshall.

Feeding Live Stock—Henry; Smith; Jordan.

Livestock Judging—Craig; Plumb; Lectures.

Dairying—Wing.

Botany—Gray; Pammel; Lectures.

Pharmacy—Stevens; Lectures.

Bacteriology—Moore; Lectures.

Pathology—Kinsley; Zeigler; Kitt, Adami.

Obstetrics—Williams; DeBruin; Fleming; Dalrymple.

General Surgery—Frohner; Moeller; Dollar; Lectures.

Special Surgery—Moeller; Merillat; Frohner, Reeks; Lectures.

Surgical Exercises—W. L. Williams.

Materia Medica and Therapeutics—Frohner; Wilcox; Winslow; Fish; Quitman.

Diseases of the Dog—Muller-Glass.

Veterinary Medicine—Law, Vols. 1, 2, 3; Moussu; Friedberger and Frohner; Huytra and Marek.

Diseases of Cattle—Dollar; Moussu; U. S. Department of Agriculture.

Diseases of Swine—Kinsley.

Diseases of Poultry—Kaupp.

Infectious Diseases—Moore; Law, Vol. 4.

Parasites—Neumann; Law, Vol. 5; Koupp.
Meat Inspection—Edelmann; Mohler-Eichhorn; Ostertag.
Milk Inspection—Ernest-Mohler-Eichhorn; Conn.
Lameness—LaCroix.
Toxicology—Tanner; Fish.
Urine Analysis—Fish.
Restraint of Animals—White.
Castration of Animals—White.

GENERAL INFORMATION

COURSES FOR WOMEN.

With the entry of women into new professions and vocations under modern social conditions, it has seemed an obligation upon the College to make provision for women in the various professional and technical courses, as well as in the academic course of the College, and to make special provision for housing women students.

NEW PROFESSIONS AND OCCUPATIONS FOR WOMEN.

High School Teaching.—Under conditions brought about by the war, under which our young men have gone to the army, women are being called in larger and larger numbers into teaching positions in high schools. Under modern industrial conditions the high school courses of study have undergone marked changes. The old type academic college no longer furnishes adequate training for all high school teachers. It was in large measure due to the recognition of this latter fact that the Department of Education of this Institute was established. In consideration of the facilities for offering training for teachers through the school of Education and in view of the fact that women must in larger measure be relied upon to give high school instruction, it has seemed appropriate to call the attention of suitable women in the State to the facilities offered in the school of Education, and in the various colleges of the Institute.

Architecture and Pharmacy.—Architecture and Pharmacy have proven attractive professions for women. The work of these two professions is admirably adapted to the pursuit of women. The attention of young women of suitable age and preparation is called to the courses of study in the Department of Architecture and Pharmacy in the Institute.

Agriculture.—Agriculture is beginning to draw the attention of women. Many women desire to master those principles and processes which will enable them to direct the various activities of their home farm. Others have a more limited interest and wish only to prepare themselves for prosecuting some single phase of farm life, such as poultry, dairying, bee culture, or horticulture. Women who are interested in these fields are advised to consider the courses offered in the College of Agriculture.

ELECTIVES FOR WOMEN.

The Institute has no department of Home Economics, but recognizes the value of training in Home Economics. Women

students, therefore, who have had Home Economics training of college grade in other institutions, may offer credits in the same in lieu of courses prescribed in the various courses of study in this institution. Such substitutions, however, shall be upon the approval of the Dean.

Other electives may be arranged with the approval of the appropriate Dean, provided such electives are consonant with a definite purpose in training.

HOME FOR WOMEN STUDENTS.

For women students room and board will be arranged under the best home conditions. The culture and refinement so essential to the proper environment of young women will receive especial attention in selecting a home for them.

CADET BAND

A. L. THOMAS, Bandmaster.

Three musical organizations are maintained—the band, the orchestra, and the glee club. Membership in these organizations is open to any student who has musical talent.

The band is maintained by the college for students who desire to develop their musical ability and for those who wish to learn music. It furnishes music for all colleges exercises, and takes part in military manoeuvers. Regular and individual instruction is given free of charge during the first term, embodying the rudiments of music and general musical information in conjunction with the practical instruction on the instrument. Public concerts are given weekly during the second term, and engagements elsewhere are usually arranged.

A gold medal is given each year by the bandmaster to the member who makes the best record.

The orchestra is an organization for musical recreation, and members are carefully selected by the director according to their musical ability.

The glee club, comprising the quartet, chorus, and stringed instruments is a student organization. The services of a musician are secured to assist with the instruction and training of the quartet and chorus. Two concerts are given at the college and concert tours are arranged during the second and third terms.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This association is regularly organized and a suite of well furnished rooms has been secured for its exclusive use. Through its weekly meetings and Bible Study Classes it exerts a wholesome Christian influence among the students.

Students are advised to unite with the association when they enter the college.

The ladies of the different churches in Auburn are organized into an auxiliary association to the Y. M. C. A. of the college.

LITERARY SOCIETIES.

There are two literary societies connected with the Institute —the Wirt and the Websterian. Each has a hall in the main building. These societies hold celebrations on the evenings of Thanksgiving and 22nd of February.

To encourage the literary societies the trustees have directed that a medal be awarded at Commencement to the member of each society who is both efficient and regular in attendance, and who is the best debater. The method of selection is determined by the faculty.

SOCIETY OF THE ALUMNI.

The annual alumni oration is delivered by a member of the society in Langdon Hall on Alumni Day, Monday of Commencement week.

OFFICERS OF THE ALUMNI ASSOCIATION.

Clarence N. Ousley, '81, Washington, D. C.....Orator
Thomas Bragg, '01, Auburn, Ala.....President
H. M. Martin, '14, Auburn, Ala.....Secretary and Treasurer

ENGINEERING SOCIETY.

All students in the courses of engineering and architecture are eligible for membership in the Engineering Society. Meetings are held twice a month, and the chief purpose of the society is to promote personal fellowship among the members, and closer affiliation with practical engineers. Prominent engineers in all lines are invited to address the society from time to time upon subjects connected with their work. At other meetings the program is supplied by the student members, thus giving opportunity for the students in one department to become somewhat familiar with the problems met with in other lines of engineering.

Suitable quarters have been provided for the society in the new Broun Engineering Hall. No regular dues are required of the members, but an occasional assessment is made to cover necessary expenses.

ARCHITECTURAL ASSOCIATION.

The Architectural Association is open to all members of the college who take work in the department of architecture. Biweekly meetings are held in the architectural library, and papers presented on subjects of professional interest, not directly covered in regular courses; the discussions that follow are always lively ones. Current articles in the technical jour-

nals are also taken up. Nothing could furnish a more striking example of the enthusiastic attitude shown by architectural students everywhere toward their chosen work, than these gatherings of the architectural association.

AGRICULTURAL CLUB.

The Agricultural Club was organized in 1907. All students interested in agriculture and the agricultural sciences are eligible for membership. The members of the Agricultural Faculty take an active part in the work of the club. Meetings are held once a week, and an effort is made to promote interest in all lines of agriculture, to develop a spirit of good fellowship among the students of the course, and bring them in contact with prominent workers of the science as opportunity offers to present them on the regular program.

Meetings are held in the club rooms in Comer Agricultural Hall.

VETERINARY MEDICAL ASSOCIATION.

The Veterinary Medical Association was organized in 1907. The meetings are held bi-weekly in the veterinary building. Medical subjects are discussed by the members or by some invited speaker or member of the veterinary faculty. All students of the Veterinary College are eligible to membership. The objects of the association are fraternal, intellectual and cultural. The annual banquet of this association is an occasion of good fellowship for the students, faculty, and veterinary alumni.

GYMNASIUM AND ATHLETIC FIELD.

The new Alumni Gymnasium offers improved facilities for complete physical training in outdoor and indoor work. The college authorities attach due importance to the value of robust physical health. Military drill according to the Federal Law is required of all able-bodied students, and ample opportunity is also offered for work in the gymnasium and field sports. The aim of the athletic authorities is to develop, not only a set of highly trained athletic experts in particular fields of sports, but to interest each individual student in the care and development of the body through some form of athletic activity. While, therefore, every effort is made to retain a high standard of athletic efficiency in various representative teams, every member of the "Auburn" student body is encouraged to gratify his love for games and sports, as well as to assimilate the "Auburn Spirit" in its intensest form; a spirit splendidly exemplified by the Alumni in making possible this handsome Gymnasium. This beautiful athletic home ranks "Auburn" as

one of the best equipped colleges in the land for the development of the physical welfare of its students. Under present conditions it is possible for two thousand students to take physical exercise at the same time.

DRAKE FIELD—A new athletic field, named in honor of the Surgeon, Dr. J. H. Drake, has been provided for baseball, football, and track athletics. It is situated on the experiment station grounds near the gymnasium. It will be gradually beautified and equipped with necessary buildings and accommodations.

DISCIPLINE REGULATIONS.

The government of the college is administered by the president and faculty in accordance with the code of laws and regulations enacted by the trustees.

Each student upon entering is required to sign his name in the matriculation book and pledges himself to obey the rules and regulations of the college.

All students are required to wear the prescribed uniform.

Attention to study and punctuality in attendance on recitations and all other duties are required of every student. Students are prohibited from having in their possession arms or weapons not issued for the performance of military duty, and also from using or causing to be brought into the college limits, intoxicating liquors.

Students are not permitted to participate in any public entertainments, or games, without previously obtaining the consent of the faculty.

No student will be permitted without the approval of his parent or guardian, to take part in a public game of football.

No student who has failed in two or more subjects will be permitted to be absent from college for athletic contests or other purposes.

(a) Every absence from recitations or examination is graded zero.

(b) When the grade of a student is lowered by reason of absence, for which satisfactory excuse can be rendered, a special re-examination may be subsequently granted, and the grade made on the special re-examination alone is substituted for that previously received.

(c) Only sickness, as reported by the surgeon, or absence by reason of family sickness, or official or collegiate business, will constitute a satisfactory excuse for granting a re-examination.

When a student is called away from college by his parents for reasons other than those specified above, his zeros for absence are not removed.

A student who, on surgeon's certificate, is excused from any subject will be required to substitute other work approved by the faculty.

The term grade of a student is the average of his daily, sessional and term examination marks, found by giving due weight to the term examination.

Only privates of the senior class in full standing who are candidates for graduation may be excused by the president from all military drills, and also students over twenty-one years of age *at the time of entering college* that are permitted to devote their time to one special study, as chemistry, agriculture, pharmacy, or engineering, provided the time devoted to drill is spent by them in laboratory work.

No student can remain an officer who receives during the session more than one hundred demerits.

BOARDING

The students board at Smith Dining Hall or with families of the town of Auburn, thus enjoying all the protecting and beneficial influences of the family circle.

For each house an inspector is appointed, whose duty it is to report those who are guilty of any violation of order. The report of the inspector is made to the commandant at stated intervals.

Students, after selecting their boarding houses, are not permitted to make changes without obtaining permission from the president, and this permission is given only at the close of a term, except for special reasons approved by the parent.

MILITARY DRILL.

There are three regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the senior class are exempt.

The drills are short, and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students, unless excused on the written request of parents for religious scruples, are required to attend these exercises, and also to attend the church of their choice on Sunday morning.

Opportunities are also offered for attending Bible classes every Sunday.

DISTINCTIONS AND HONORS.

Certificates of highest distinction and of distinction are given on the basis of credits, one credit being considered as the equivalent of one recitation per week for one term. Two hours of laboratory or shop work or drawing are counted as one hour of recitation. An undergraduate student taking less than an average of eighteen credit hours per term will not be eligible for distinction. Certificates will be awarded to those students who have not received more than forty demerits, and who comply with the scholarship requirements announced by the faculty.

Members of the senior class who attain highest distinction are published as *Graduates with Highest Honor;* those who attain distinction are published as *Graduates with Honor;* seniors who do not attain distinction, but who attain a grade of sixty per cent or above are published as *Graduates.*

RECORDS AND REPORTS.

Daily records of the various exercises of the classes are kept by the officers of instruction.

At the close of each term and at regular intervals reports giving the grade made by each student are sent to the parent or guardian.

EXAMINATIONS.

Written examinations on the studies of the half-term are held by each professor during the months of October and February. Each examination occupies one hour.

At the end of each term written examinations, or written and oral, are held on the studies passed over that term.

Special examinations are held only by order of the faculty, and in no case will private examinations be permitted.

Students falling below the minimum grade at the final examination can be promoted to full standing in the next higher class only on satisfactory examinations at the opening of the next session.

It is required that every student who enters college shall remain through the examinations at the end of the term. Leaves of absence and honorable discharges will, therefore, not be granted within three weeks of the examination, except for providential reasons.

RE-EXAMINATIONS.

Re-examination for deficiencies incurred by students before entering the senior class shall be set not later than the first week in April, except when deficiencies are being made up in class. Seniors failing in any subject will have two opportunities for removing the conditions.

No senior who fails on two final examinations will be re-examined.

No re-examination will be given seniors after the Saturday before Commencement.

HONOR SYSTEM.

During the session of 1910-11 the Honor System, which for years had been in effect in the higher classes, was adopted by the entire student-body of the institution, to apply to all work done in the class-room and on examinations. Under this system the student is pledged neither to give nor receive any assistance, whatsoever.

All students upon entrance subscribe to the Honor System as in force at this institution.

Proper regulations for administering the system have been adopted by the student-body.

The spirit of truth and honor, thus fostered in the examination room, is an efficient means of raising the scholarship, and tends to inculcate high ideals of honor among the students.

SCHOLARSHIPS.

The following scholarships and prizes have been established:

THE WILLIAM LEROY BROUN MEMORIAL SCHOLARSHIP OF $170, established by the Alumni Society, in memory of the late distinguished president of the Institute.

THE LIGON SCHOLARSHIP OF $170, established by Col. R. F. Ligon, Montgomery, Ala.

THE THOMAS SCHOLARSHIP OF $170, established by Judge William H. Thomas, Montgomery, Ala.

THE BALL SCHOLARSHIP OF $170, established by Mr. Fred S. Ball, Montgomery, Ala.

THE DUNKLIN SCHOLARSHIP OF $600, established by Mr. and Mrs. J. C. Street, Opelika, Ala., in memory of Prof. J. T. Dunklin, former professor of Latin in the college.

THE 1908 SCHOLARSHIP OF $150, established by the Class of 1908.

THE ALICE CARR SCHOLARSHIP OF $180, established for young women by the late Miss Alice Carr, Auburn, Ala.

THE RANSOM MEMORIAL SCHOLARSHIP OF $125, per year, established by the Alumni Association in memory of the late Prof. A. McB. Ransom, is available for students in the junior and senior classes of the course in chemistry and metallurgy.

THE JEWISH LOAN SCHOLARSHIP OF $1,000, established by a former student of the college.

TWO HENDERSON SCHOLARSHIPS OF $100 each, established by Judge W. L. Henderson, of Miller's Ferry, Ala.

THE SIDNEY SMITH MEMORIAL SCHOLARSHIP OF $100, established by his parents, Mr. and Mrs. Smith, Bessemer, Ala.

THE C. S. YARBROUGH SCHOLARSHIP OF $1,000 established by Dr. C. S. Yarbrough, Auburn, Ala.

A scholarship has been established for worthy musicians who are in need of assistance in defraying their college expenses.

THE ALABAMA FEDERATION LOAN SCHOLARSHIP OF $200 annually, established in 1917 by the Alabama Federation of Women's Clubs.

The conditions governing the award of this scholarship are as follows:

(a) The beneficiary shall be a young woman resident of Alabama, between the ages of 18 and 24 years, prepared to enter the junior class.

(b) She must be unable to complete her education without financial assistance.

(c) She must maintain the required standard in scholarship, attendance and conduct. Failing in any of these requirements, she may be replaced by another beneficiary appointed in the same manner.

(d) The beneficiary must be free from any other financial obligation.

(e) Repayment of this loan shall be made at the rate of $100.00 a year, without interest, the first payment becoming due the first year after graduation or resignation.

(f) The beneficiary shall signify her perfect understanding of these terms by signing a paper of agreement to be presented to her by the President of the Alabama Polytechnic Institute.

All applications should be sent to the Chairman of the Federation Scholarship Committee, Mrs. C. Clifford Adams, 3421 Willow Avenue, Birmingham, Alabama.

The scholarships enumerated above are loan scholarships, granted to worthy young men and women, to be returned after graduation.

THE ROBERT E. LEE MEMORIAL SCHOLARSHIP OF $100, an annual donation for the son of a Confederate veteran, established by the Children of the Confederacy of Alabama under the auspices of Mrs. Mary G. Pickens.

THE UNITED DAUGHTERS OF THE CONFEDERACY LOAN SCHOLARSHIP OF $100, established in 1908 by the Alabama Division of the United Daughters of the Confederacy to be awarded by a committee of the Division to a descendent of a Confederate veteran.

The above named scholarships and ten other scholarships are administered by the Alumni Society. (*For information, address H. M. Martin, Secretary.*)

THE GRAYDON SCHOLARSHIP FUND OF $3,000 established by the family of the late Augustus T. Graydon, of South Carolina, a loyal alumnus of the class of 1914.

SOUTHERN RAILWAY LOAN SCHOLARSHIP OF $1,000, established by the Southern Railway in memory of the late W. W. Finley, President of the Southern Railway.

PRIZES.

THE THOMAS ESSAY PRIZE, a gold medal offered by Hon. William H. Thomas, of Montgomery, Ala., for the best essay by an undergraduate student of the college. The essay must be written under the supervision of the department of English. 1917, *Oscar LaFayette Martin*, South Carolina.

THE SOUTHERN INTERCOLLEGIATE ARCHITECTURAL COMPETITION in Senior Design is held in the Spring of each year by an association composed of the leading colleges of the South offering courses in architecture. Funds for suitable prizes are provided by the State Chapters of the American Institute of Architects. At the close of the competition the competing drawings are exhibited in turn at each of the schools taking part in it.

THE MILLER REESE HUTCHISON MEDAL FOR ENGINEERING WRITING: A gold medal of appropriate design is offered by Dr. Miller Reese Hutchison, of Orange, N. J., to the member of the senior class who does the most satisfactory work in the course of Engineering Writing. The work must be done under the supervision of the Department of Machine Design.

THE MILLER REESE HUTCHISON MEDAL FOR INVENTIVE DESIGN: A gold medal of appropriate design is offered by Dr. Miller Reese Hutchison, of Orange, N. J., to the member of the junior class who does the most satisfactory work in the course of Inventive Design. The work must be original and must be done under the supervision of the Department of Machine Design.

THE ORATORICAL PRIZE, medal to that member of the junior class who composed and delivered the best oration on junior class day of Commencement.

THE ORATORICAL PRIZE, for the Annual Inter-Literary Society Contest, February 22.

SOPHOMORE MEDAL, Best Debater, 1917: *Euel Howard Gentry*, Bibb County.

FRESHMAN MEDAL IN DECLAMATION for annual contest, May 1st, 1917: *William Lee Sims*, St. Clair County.

PRIZE FOR BEST DEBATER, a medal given annually by the Board of Trustees to the best debater in the Wirt and Websterian Literary Societies each. 1917: Wirt—*Roland Lee Sparkman*, Jefferson County; Websterian—*Oscar LaFayette Martin*, South Carolina.

BEST DECLAIMER IN LITERARY SOCIETIES, 1917: Wirt—*Edward Hofford Todd*, Jefferson County; Websterian—*Edwin Bragg Lancaster*, Sumter County.

REGIMENTAL MEDAL, for the best drilled soldier, 1917: *John Peyton Fuller, Jr.*, Madison County.

PRIZE FOR BEST DRILLED COMPANY, a sword given by Board of Trustees. 1917: *Harry Peckham Sparkes*, Jefferson County.

LIBRARY.

LIBRARIAN, JAMES R. RUTLAND.
ASSISTANT LIBRARIAN, MISS MARY MARTIN.
ASSISTANT MISS THOMPSON.
ASSISTANT SIMS.
ASSISTANT WILSON.

The beautiful Carnegie Library building is constructed of stone and pressed brick. The reading room is 80 x 40 feet, and the building is equipped with every convenience. It is lighted by electricity and heated by steam. The capacity of the stack room is 60,000 volumes. The library now contains 28,000 volumes, including valuable reference and scientific books, with select editions of standard authors, and others suitable for students, carefully and recently selected. It is kept open eight hours daily for the use of students as a reading room and is thus made an important educational feature.

THE O. D. SMITH COLLECTION.

The library of the late Prof. O. D. Smith has been presented to the college by Mrs. O. D. Smith, and is preserved as a memorial to his long and distinguished services to the college.

THE F. D. PEABODY MEMORIAL ROOM.

Through the generosity of Mr. George Foster Peabody, New York City, an annual fund of fifty dollars, income from a permanent investment is available for the purchase of books and furniture for the "F. D. Peabody Memorial Historical Seminary." F. D. Peabody, Esq., was a distinguished graduate of the Class of 1876.

THE W. D. TAYLOR MEMORIAL COLLECTION.

The engineering library of the late W. D. Taylor, chief engineer of the Chicago and Alton Railway, was bequeathed by him

to the Alabama Polytechnic Institute, and is preserved by the College as a memorial to this distinguished alumnus. Mr. Taylor was a graduate of the Class of '81, and was regarded as one of the leading civil engineers of the United States.

MUSEUM.

The Museum occupies a large room in the third story of the Main Building. It is provided with suitable cases, and is equipped with valuable specimens and models of an instructive character.

UNIFORMS.

A uniform of gray cadet cloth is prescribed, which all undergraduate students are required to wear during the session. The uniforms are made by a contractor, and are of excellent cloth manufactured at the Charlottesville Mill. A suit, including cap, costs at present $23.00. It is neat and serviceable, and less expensive than ordinary clothing.

LABORATORY FEES.

Each student in the following courses is required to pay the laboratory fee specified.

Chemical laboratory	$ 5.00
Pharmacy laboratory	5.00
Electrical engineering laboratory	5.00
Mechanical engineering laboratory	5.00
Veterinary medicine (dissecting fee)	10.00
Dairy laboratory	3.00
Soils laboratory	3.00
Horticultural laboratory	1.00
Botanical laboratory	1.50 to 2.50
Civil engineering (surveying)	1.00
Civil engineering (road materials laboratory)	1.00
Civil engineering (summer camp, including board)	18.00
Entomology	1.00
Zoology	1.00

Special students in laboratory work will pay additional fees for each separate division of work, and will be charged with all material consumed in experiments.

CONTINGENT FEE.

A contingent fee of $2.50 is required to be deposited by each student on matriculation to cover any special or general damage to college property for which he may be liable. General damages are assessed on the body of students.

At the close of the session the whole of the contingent fee or the unexpended balance, is refunded to the student.

FUNDS OF STUDENTS.

Parents or guardians are advised to deposit with the treasurer of the college all funds desired for sons or wards, whether for regular charges, college fees or board or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands and to pay all expenses incurred by the students, including board, uniform, books, etc.

The college cannot be held responsible for the expenses of a student unless the funds are deposited under specific instructions from the parent or guardian to the treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble, and encourages idleness.

NON-RESIDENT STUDENTS.

Tuition for students not residents of Alabama is $20.00 per session, unless remitted by the trustees to worthy students upon the recommendation of the faculty.

The remission of this tuition fee to non-resident students will be granted in the form of a free scholarship for the succeeding year to those who obtain a distinction the preceding year, or who, by reason of merit, are deemed worthy.

The following non-resident students were granted, each by reason of special merit in conduct and scholarship during the session of 1916-1917 an honor scholarship, which exempted from tuition fees:

William Wallace Allen ..... Florida
William Arnold Guess ..... Mississippi
Frederick Jolly Matthews ..... Georgia
Christopher John Murray ..... Tennessee
Frank Wilson Parker ..... Kentucky
John Patrick Sullivan ..... South Carolina
Lionel Earl Tisdale ..... Florida
John Herman Trapp ..... Mississippi
Lewis Candler Vaughn ..... Georgia

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Board, including lodging, fuel, and lights, is furnished at $15.50 to $20.00 per month.

For non-residents of the State there is a charge of tuition of $20.00 per session, payable on matriculation, in addition to the annual fees payable by all students. A student once entering as a non-resident will not be permitted to claim residence unless his parent or guardian becomes a resident or tax payer on property in Alabama. Tuition for non-residents is remitted to sons of ministers of the Gospel.

AMOUNT OF DEPOSIT.

All fees, including laboratory fees, are payable on matriculation. *By order of the Trustees a matriculation fee of* $12.00 *is retained from deposits of students who withdraw. To students who withdraw after one month's residence in college only the remainder of the laundry fee and the contingent fee, less charges, may be returned; no laboratory fee may be returned; after the beginning of the third term only the contingent fee may be returned.*

Fees to be paid on entrance:

Incidental	$ 5.00	
Library	2.00	
Surgeon	5.00	
Contingent	2.50	
Athletic	6.00	
Uniform	23.00	
Laundry fee for session	12.50	
For a resident of Alabama	$56.00	$56.00
Tuition non-resident		20.00
For a non-resident		$76.00

THESIS.

Each applicant for a degree is required to write and submit to the faculty a thesis, or oration and read or deliver the same at Commencement, if required by the faculty.

There may be presented with the approval of the professor in charge, a carefully written report of special work done in a laboratory, showing independent investigation and discussion of some subject.

It must be given to the professor by the first of May. The subject must be submitted for approval by January 1st.

SURGEON.

The Surgeon is required to be present at the college daily, to visit at their quarters the cadets that are reported sick, and give all requisite medical attention without other charge than the regular surgeon's fee, paid on entering the Institute.

An infirmary has been established and is properly equipped.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railway of Alabama.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tidewater. By statute of the State the sale of spirituous liquors and the keeping of saloons of any kind are forbidden.

ACADEMIC YEAR.

The academic year for 1918-19 commences on Wednesday, September 11, 1918, and ends on Tuesday, June 3, 1919, which is Commencement Day.

It is divided into three terms: The first term extends from the opening of the session to December 20th; the second term begins January 2nd, and ends March 24th; the third term continues to the end of the session.

REGISTER

MILITARY ORGANIZATION

SESSION 1917-18

RESERVE OFFICERS' TRAINING CORPS.

President

CHAS. C. THACH

Commandant

EDWARD T. WINSTON, U. S. A., Ret.

Surgeon

DR. J. H. DRAKE

Regimental Commander

Cadet Colonel John P. Shaffer.

Regimental Staff

Cadet Lieut. Col. John M. Ward.
Cadet Capt. W. H. Withington, Adjutant.
Cadet Capt. J. A. Strozier, Supply Officer.

Regimental Non-Commissioned Staff

Cadet Sergeant J. J. Ryan, Sergeant Major.
Cadet Sergeant W. H. Philpot, Quartermaster Sergeant.
Cadet Sergeant W. R. Turnipseed, Color Sergeant.
Cadet Sergeant J. T. French, Color Sergeant.
Cadet Sergeant C. T. Tucker, Drum Major.

First Battalion

Cadet Major W. W. Allen.
Cadet First Lieutenant A. J. Kirby, Adjutant
Cadet Sergeant W. J. Ross, Battalion Sergeant Major.

Cadet Captains

Company A	Company B	Company C	Company D
J. H. Witherington	O. H. Schultz	R. T. Kernachan	W. A. Guess

Cadet First Lieutenants

W. C. Sills	G. L. Burleson	Y. A. Elizondo	J. C. Ard

Cadet Second Lieutenants

R. D. Jordan	J. M. Sparrow	L. G. Duggar	J. A. Shealy

Cadet First Sergeants

T. B. Chambers	G. W. Duncan	J. M. Rainer	H. J. Daniel

Cadet Sergeants

G. A. Wright	R. P. Simmons	E. E. Terry	L. L. Self
R. H. Turner	G. E. Lumpkin	J. R. Nesbitt	E. A. Caldwell
E. B. Crawford	W. D. Kimbrough	R. S. Reed	F. Walker
L. E. Tisdale	J. W. Tidmore	F. J. Matthews	C. J. Brockway
	J. M. Fullan	H. T. Killingsworth	

Cadet Corporals

C. E. Stapp	F. W. McMeans	W. L. Douglas	W. C. Edwards
J. B. Suggs	L. C. Watson	M. L. Perdue	C. J. Perryman
I. M. Griffin	S. C. Rutland	D. Crain	H. A. Milliken
H. Carder	L. Crown	W. F. Godwin	R. B. Kelly
A. Shaver	J. D. Ratchford	E. P. Garrett	A. L. Jones
H. C. Snellgrove	C. S. Peter	J. D. Foster	M. Taylor
	E. Collier		A. F. Alsobrook

Second Battalion

Cadet Major J. H. Hamilton.
Cadet First Lieutenant C. B. Crow, Adjutant.
Cadet Sergeant J. H. Watson, Battalion Sergeant Major.

Cadet Captains

Company E	Company F	Company G	Company H
J. T. Fowler	W. W. Sullivan	O. L. Martin	W. C. McKay

Cadet First Lieutenants

O. N. Massengale	J. T. Hudson	J. S. N. Davis	J. B. Mayes

Cadet Second Lieutenants

S. W. Hill	E. O. Duffey	J. A. Peterson	L. H. Heyman

Cadet First Sergeants

S. J. Nadler	P. W. Pelts	V. C. Hanna	C. H. Adams

Cadet Sergeants

J. H. Drake	N. D. Spann	J. P. Sullivan	E. F. Pollard
J. P. Fuller	E. V. Frederick	G. E. Burgin	J. Thomas
J. W. Pruett	J. E. Howell	W. M. Mobley	F. H. Cutts
N. B. Sullivan	H. L. Reynolds	C. J. Murray	S. C. Phillips
			M. L. Bonner

Cadet Corporals

R. C. Bradford	P. Frederick	W. A. Pipkin	D. C. Jimmerson
L. C. Vaughn	R. H. Hamner	A. A. Smith	J. H. Murray
E. C. Nichols	S. L. Threadgill	W. L. Holmes	G. A. Mattison
E. W. Freeman	McK. Heath	W. B. Howard	M. E. Bryant
G. W. Jones	E. L. Harper	A. J. Bowab	J. H. Beckham
C. E. Carlovitz	W. M. Little	G. H. Wright	W. Cook
C. H. Bedingfield	D. D. Major	J. H. McIntosh	J. L. Elliott

THE CADET BAND

Session 1917-18

A. L. THOMAS, Bandmaster

Military Officers

R. R. McAdory ---------- Lieutenant
L. G. Duggar ---------- Lieutenant
C. T. Tucker ---------- Sergeant and Drum Major
J. W. Pruett ---------- Sergeant
G. A. Mattison ---------- Corporal
J. D. Foster ---------- Corporal

Musicians

Cornets

T. M. Brannon
J. Memoli
L. G. Duggar
E. W. Freeman
A. M. Dowling
J. M. Merritt

Altos

A. T. Levie
J. W. Pruett

Baritones

W. M. Stewart
W. E. Conger

Flute and Piccolo

J. A. Douglas
J. M. Linx

Bass Tubas

G. A. Mattison
L. P. Hodges

Clarinets

R. R. McAdory
R. S. Allen
M. A. Martin
H. Urdong
A. C. Moye
B. L. Ward

Saxophones

W. L. Riley
J. D. Foster
G. B. Warren
H. K. Stephenson

Trombones

R. P. Simmons
C. H. Speigner
S. H. Dent

Oboe

M. Greenburg

Drums

G. M. Meriwether
J. R. Moon
B. W. Clendinen

Bugle Corps

D. H. Holder
S. G. Harper
J. S. Kernachan
J. J. Beggs
C. E. Reid
H. L. Biggin

Cadets of the graduating class who were reported to the Adjutant General, U. S. Army, as having ranked highest in the Military Department:

1889	1892	1895
A. St. C. Dunstan	H. F. Dobbin	S. L. Coleman
B. H. Crenshaw	A. L. Jones	H. H. Smith
A. J. Burr	C. L. Brown	L. B. Gammon
1890	**1893**	**1896**
F. D. Milstead	Joel Dumas	A. L. Alexander
J. W. Bivins	C. H. Smith	W. L. Fleming
G. W. Emory	J. F. Webb	W. M. Williams
1891	**1894**	**1897**
L. E. Baker	C. S. Andrews	P. G. Clark
C. C. Johnson	P. P. McKeown	G. M. Holley
F. J. Bivins	R. L. Dorsey	G. N. Mitcham

1898
A. H. Clark
A. McB. Ransom
John Haralson

1899
I. F. McDonnell
A. H. Feagin
T. W. Wert

1900
E. M. Mason
H. P. Powell
C. W. Nixon

1901
A. F. Jackson
J. D. Foy
P. S. Haley

1902
W. D. Willis
J. E. D. Yonge
J. B. Garber

1903
H. E. Davis
H. M. Yonge
T. J. Dowdell

1904
J. McDuffie
B. L. Shi
Geo. Dunglinson, Jr.

1905
R. P. Boyd
R. H. McCulloh, Jr.
J. H. Paterson

1906
W. H. Foy
F. H. Mohns
M. A. Frazer

1907
N. B. McLeod
W. L. Perdue
G. F. Lipscomb

1908
S. A. Ellsberry
C. M. Howard
R. H. Liddell

1909
J. W. Powell
S. H. Richardson
T. Beasley

1910
D. M. Clements
C. C. Yonge
J. M. Spearman

1911
J. E. Davis
J. J. Cater
G. Lothrop

1912
S. R. Cruse
C. C. Thach, Jr.
F. L. Jenkins

1913
R. A. McGinty
D. L. Taylor
H. C. Hanlin

1914
R. E. Herring
W. B. Tisdale
E. F. Barry

1915
D. D. Gibson
C. A. Donehoo
W. F. Littleton

1916
E. W. Smith
C. E. Newman
A. E. Hayes

1918
J. H. Witherington
J. A. Strozier
C. B. Crow

DISTINGUISHED STUDENTS

SESSION 1916-17.

Students who receive a grade of above 90 per cent, and less than 95 in the prescribed number of subjects, are distinguished for excellence in scholarship, and are awarded Certificates of Distinction. Those who receive a grade above 95 per cent, are awarded Certificates of Highest Distinction.

FRESHMAN CLASS.

DISTINCTION.

Daniel Garland Barnes ---------- Dale
Thomas Lyons Bradley ---------- Jefferson
George Clay Brown ---------- Lamar
Hamlin Alexander Caldwell ---------- Jackson
Raymond Austin Chambers ---------- Limestone
Stuart Hubert Dent ---------- Barbour
Charles Wesley Edwards ---------- Coffee
Lester Lamar English ---------- Morgan
Charles Ewell Floyd ---------- Lee
Joseph Langhorne Hammond ---------- Etowah
James Arnold Harmon ---------- Chambers
Milton Oliver Howle ---------- Jefferson
Edward Clare Jacob ---------- Dallas
Joseph Benjamin Kantor ---------- Jefferson
Hanson Stakely Keller ---------- Jefferson
Albert Shelton Lisenby ---------- Houston
John Burrow Looney ---------- Jefferson
Amos Bender Miller ---------- Cullman
Oscar Albin Nelson ---------- Jefferson
James Cornelius O'Neal ---------- Mobile
Robert Homer Orr ---------- Chambers
Ernest Eugene Price ---------- Talladega
James Paul Robinson ---------- Choctaw
William Richmond Stephens ---------- Lee
Dana Gibson Sturkie ---------- Lee
Joe Thomas ---------- Tallapoosa
Edward Hofford Todd ---------- Jefferson
John Herman Trapp ---------- Mississippi

HIGHEST DISTINCTION.

Augus Mancill Dowling ---------- Barbour
Lecil Verland Evans ---------- Lamar
Edwin Bragg Lancaster ---------- Sumter
Claude Sizemore ---------- Fayette

SOPHOMORE CLASS.

DISTINCTION.

Simeon Arthur Allen ..... Shelby
Costa Boone Barker ..... Lee
Helen Blasingame ..... Lee
Lyle Brown ..... Choctaw
Ollie Clifton Bryan ..... Coffee
Thomas Browning Chambers ..... Limestone
Eugene Benson Crawford ..... Macon
Marion Graves Crosthwait ..... Jefferson
Llewellyn Goode Duggar ..... Lee
James Douglas Foster ..... Lee
William Duke Kimbrough ..... Wilcox
Frederick Jolly Matthews ..... Georgia
Christopher John Murray ..... Tennessee
Solomon Joseph Nadler ..... Etowah
Russell Sage Reed ..... Etowah
Alma Smith ..... Lee
John Patrick Sullivan ..... South Carolina
Emmett Edwin Terry ..... Madison
Lionel Earle Tisdale ..... Florida
Roy Hope Turner ..... Tallapoosa
Lewis Candler Vaughn ..... Georgia
William Benjamin West ..... Cherokee

HIGHEST DISTINCTION.

James Hodges Drake ..... Lee
George Alfonso Wright ..... Lee

JUNIOR CLASS.

DISTINCTION.

William Wallace Allen ..... Florida
George Larkin Burleson ..... Marion
William Arnold Guess ..... Mississippi
Robert Thomas Kernachan ..... Colbert
Otto Henry Schultz, Jr. ..... Jefferson
Laura Watt ..... Lee
William Herman Withington ..... Jefferson

SPECIAL STUDENTS.

DISTINCTION.

Carl Herman Brill ..... Jefferson
John Fletcher Yarbrough ..... Houston

HIGHEST DISTINCTION.

Frank Wilson Parker ..... Kentucky

GRADUATES

CLASS OF 1917.

HONORS.

Members of the Senior Class who attain distinction with a grade of 95 per cent, are graduates with Highest Honor. Those who attain a distinction with a grade of 90 per cent, and less than 95, are Graduates with Honor. Those who attain less than 90 per cent, and more than 60 per cent, are Graduates.

DEGREES.

BACHELOR OF SCIENCE.

GRADUATES.

Saul Perry Adelson ..... Jefferson
Irvin Gravely Ammen ..... Jefferson
William King Askew ..... Marengo
Thomson William Bailey ..... Jefferson
Hammond Dudley Baker ..... Lee
Harrison Bates ..... South Carolina
Theodore Russell Benning ..... Georgia
Roger McIver Bostick ..... Mississippi
George Randolph Bowling ..... Tallapoosa
Howard Milton Boyd ..... Lee
William McClellan Bruce ..... Wilcox
Cyril Kenneth Bryan ..... Blount
Frate Bull ..... Marion
Hugh Otis Burgess ..... Cleburne
Francis William Burns ..... Clay
Guy Olney Burns ..... Lauderdale
Charles Cleveland Bush ..... Talladega
Hugh William Caffey ..... Jefferson
Colonel Richard Carnes ..... Marion
Abner Boone Chapman ..... Covington
James Arthur Chappell ..... Jefferson
Frederick Victor Cluis ..... Georgia
Mary Glenn Crenshaw ..... Lee
Lewis Battle Dean ..... Tallapoosa
Leo Donovan ..... Dallas
John Andrew Douglas ..... Mobile
Albert Hugh Dumas ..... Lee
Julius Eagle ..... Dallas
Annalee Edwards ..... Lee
Harrison Bartow Emerson ..... Etowah
Seth Jordan Floyd ..... Lee
Gordon Greene Ford ..... Franklin
Joseph Marshall Foulks ..... Louisiana
Loraine Walker Funk ..... South Carolina
Daniel Andrew Helmich ..... Jefferson
Edward Beverly Henry ..... Lee
James Edwin Hickey, Jr. ..... Montgomery
Lovic Pierce Hodnette ..... Macon
Daniel Webster Hollis ..... Henry
Ray Milton House ..... Calhoun
William John Howard ..... Montgomery
Leon Ledyard Jeffrey ..... Wilcox
John William Johnston ..... Blount
George Allard Kaufmann ..... Louisiana
James Marion Kelley, Jr. ..... Georgia
Captain Tullis Knight ..... Barbour
Lesley Bateson McCoy ..... Escambia

Thomas Turner McLemore ..... Jefferson
Oscar L. McMurray ..... Franklin
Lawrence Marvin McRae ..... Chambers
George Rufus Mays ..... Marion
Samuel Douglas Melanson ..... Louisiana
James Foy Middlebrooks ..... Barbour
James Kirk Newell ..... Tallapoosa
John Carew Powell ..... Montgomery
Homer Prendergast ..... Texas
William Thomson Price ..... Tuscaloosa
Bryan Pritchett ..... Clarke
James Frederick Pruett ..... Russell
Dibble Manley Rickenbaker ..... South Carolina
Walter Hugh Roberts ..... Baldwin
Carey Carlisle Robinson ..... Lee
James Donald Russell ..... Calhoun
Atlee Davis Sample ..... Morgan
Abb Llewellyn Scarbrough ..... Calhoun
John Hadley Scott ..... Tennessee
Harry Berry Seybt ..... South Carolina
John Parker Shaffer ..... Tallapoosa
Sylvester Guinn Sharit ..... Jefferson
James Edgar Shotts ..... Marion
Frank King Simmons ..... Florida
Augustus Hoke Sloan ..... South Carolina
Harry Peckham Sparkes ..... Jefferson
William Augustus Stickney ..... Calhoun
Phillip Avary Terrell ..... Lee
Richard Hartwell Thach ..... Lee
Herbert Wright Thomason ..... Lee
John Earle Thomason ..... Lamar
Ira Asa Thompson ..... Pike
Henry Philip Trawick ..... Lee
Lovell Lack Turley ..... Missouri
Conrad Gray Wall ..... Jefferson
Alfred Benjamin Walter, Jr. ..... Louisiana
John Meriwether Ward ..... Greene
Jesse Jordan Warren ..... Montgomery
George Egbert Weber, Jr. ..... Lee
James Wallace Whatley, Jr. ..... Lee
Wheeler Williams, Jr. ..... Russell
David A. Woodard ..... Louisiana
Barbara Wright ..... Lee

GRADUATES WITH HONOR.

Glenn Andrews, Jr. ..... Montgomery
William Watson Barron ..... South Carolina
Walter Gustavus Bevill, Jr. ..... Hale
Roy Gatman Carpenter ..... Marion
Ernest Linwood Deal ..... Tuscaloosa
Joseph Best Grimsley ..... Georgia
Henry Harris House ..... Etowah
Charles L. Isbell ..... Lee
William Jesse Isbell ..... Lee
Thomas McDonald Jones ..... Coosa
Thomas Jefferson Jordan ..... Marshall
William Robert Lassiter ..... Lee
Hester Marion Lewis ..... Bibb
William Wyman Owens ..... Pike
Allen Benjamin Pimm ..... Florida
Emma Rebecca Stodghill ..... Lee
Shu Min Wong ..... China

GRADUATES WITH HIGHEST HONOR.

William Lee Blanton ---------- Florida
James Roy Hines ---------- Chambers
Phares Woods Matthews ---------- Jefferson
Wilbur Thomas Shinholser ---------- Georgia
Lamar Mims Ware ---------- Georgia
Gordon Worley ---------- Tallapoosa

GRADUATES IN PHARMACY (PH. G.)

GRADUATES.

Leslie Allen Akins ---------- Barbour
Charles Martin Cherry ---------- Houston
Ernest Matkin Dunn ---------- Marengo
James Thomas Farmer ---------- Geneva
Henry Carl Fischer ---------- Cullman
Pugh Bryan Harris ---------- Pike
Glover Abraham Johnston ---------- Cherokee
George Lawrence Morris ---------- Crenshaw
Byron Ross McBryde ---------- Geneva
Henry Erskine McNamara ---------- Jefferson
Rhett Goode Reynolds ---------- Crenshaw
Carl Vernon Tanner ---------- Mobile

GRADUATE WITH HONOR

Charles George Yarbrough ---------- Monroe

GRADUATES IN VETERINARY MEDICINE (D. V. M.)

Dee Lloyd Allen ---------- Sumter
William Elmer Bachelor ---------- Elmore
Carey Linwood Bell ---------- North Carolina
Daniel Lorenzo Campbell ---------- Lee
Elmer Bernard Campbell ---------- Marshall
Billy Elza Carlisle ---------- Macon
Hosmer LaFayette Farr ---------- Jefferson
Condie Pugh Gaston ---------- Wilcox
Robert Henry Glenn ---------- South Carolina
Leonard Johnston Hill ---------- Calhoun
Thaddeus Henry Ingram, Jr. ---------- Lee
Byron Newman Lauderdale ---------- Coosa
Harmon King Law ---------- Pike
William Lonnie Parrish ---------- Chilton
Leon Louis Powell ---------- Choctaw
Walter James Schimmel ---------- Jefferson
Edward Hunter Welles ---------- Tennessee

POST GRADUATE DEGREES.

MASTER OF SCIENCE.

James Warren Andrews ---------- Montgomery
Joseph Calloway ---------- Montgomery
Frank Kitchell Nesbitt ---------- Jefferson
Samuel Andrew Wingard ---------- Montgomery

PROFESSIONAL DEGREES IN COURSE.

CIVIL ENGINEER.

Charles Hereford Gilmour ---------- Jefferson
Percy Reynolds Smith ---------- Jefferson

ELECTRICAL ENGINEER.

Lee Irwin Davis ---------- Mobile
Harry Gordon Farris ---------- Etowah
Thomas Christopher Rives ---------- Montgomery

MECHANICAL ENGINEER.

Edward Gatchell ---------- Lee
George Lampros ---------- Montgomery

CATALOGUE OF STUDENTS

SESSION 1917-1918

GRADUATE STUDENTS.

Howard Milton Boyd ..... Lee
Thomas William Clift ..... Madison
John Andrew Douglas ..... Mobile
Charles L. Isbell ..... Lee
Alan Benjamin Pimm ..... Florida
Carey Carlisle Robinson ..... Lee
John Parker Shaffer ..... Tallapoosa
Cleveland Gillespie Sharpe ..... Morgan
John Meriwether Ward ..... Greene

SENIOR CLASS.

Roger William Allen ..... Jefferson
William Wallace Allen ..... Florida
Jerome Cochrane Ard ..... Dale
James Oliver Avery ..... Marion
Marion Russell Avery ..... Franklin
William Henry Avery ..... Marion
Berta Leon Balch ..... Macon
Costa Boone Barker ..... Lee
Forest Reynolds Birchfield ..... Jefferson
Madison LeRoy Bonner ..... Clay
Charles Jacob Brockway ..... Sumter
Ollie Clifton Bryan ..... Coffee
Jesse Samuel Burbage ..... Jefferson
Gurley Everett Burgin ..... Jefferson
George Larkin Burleson ..... Marion
Green Berry Bush, Jr. ..... Choctaw
Ralph Akin Carroll ..... Lee
Elwyn Allen Cary ..... Lee
William Edmond Conger ..... Louisiana
Charles Brandon Crow ..... Walker
Herschel Jackson Daniel ..... Georgia
John Stephen Neal Davis, Jr. ..... Georgia
Ralph Emerson Davis ..... Georgia
Robert Floyd Donehoo ..... Blount
Charles Edwin Doughtie, Jr. ..... Georgia
Richard Joseph Ducote ..... Mobile
Elmer Odell Duffey ..... Jefferson
Llewellyn Goode Duggar ..... Lee
Yndalecio Andres Elizondo ..... Mexico
McKendree Heard Floyd ..... Lee
James Thomas Fowler, Jr. ..... Houston
William Edward Frawley, Jr. ..... Jefferson
Ernest Vossie Frederick ..... Marion
Edwin Wills Freeman ..... Florida
James Tarver French ..... Pike
William Arnold Guess ..... Mississippi
Wayne Willard Hall ..... DeKalb
Joseph Henry Hamilton ..... Jefferson
George Boltz Hawthorne ..... Wilcox
B. H. Haynes, Jr. ..... Clay
Lewis Harris Heyman ..... Tennessee
Samuel White Hill ..... North Carolina

John Thomas Hudson, Jr. ..... Tennessee
Samuel Robert Huey ..... Jefferson
David Charles Jimmerson ..... Lee
Elizabeth McTyeire Johnson ..... Lee
Lucius Wiley Johnson ..... Tuscaloosa
Neal Corbley Johnson ..... Colbert
Robert Dawson Jordan ..... Crenshaw
Robert Thomas Kernachan ..... Colbert
Albert Johnson Kirby ..... Jackson
Benjamin Terrell Kirby ..... Georgia
Augustus Theodore Levie ..... Coosa
William Lithgow Liddell ..... Wilcox
George Ernest Lumpkin ..... Marshall
Richard Rose McAdory ..... Jefferson
William Cook McKay ..... Montgomery
Oscar Lafayette Martin ..... South Carolina
Oliver Norfleet Massengale ..... Elmore
James Belser Mayes, Jr. ..... Georgia
Robert Lee Miller ..... Walker
Harold Anderson Milliken ..... Jackson
John Herbert Murray ..... Escambia
Jule Rembert Nesbitt ..... Jefferson
Frank Wilson Parker ..... Kentucky
Julius Albert Peterson ..... Coosa
Ellison Avery Phillips ..... Clay
William Henry Philpot, Jr. ..... Macon
Henry Leland Reynolds ..... South Carolina
Herbert Balsham Rigby ..... Georgia
Joe Posey Robertson ..... Fayette
William Johnston Ross ..... Calhoun
John James Ryan ..... Tennessee
Otto Henry Schultz, Jr. ..... Jefferson
Albert Sidney Scott ..... Walker
Leroy LaFayette Self ..... Blount
John McElroy Selman ..... Coosa
Arthur Shaver ..... Cullman
John Andrew Shealy ..... Louisiana
Albert Edward Sheridan ..... Georgia
William Clem Sills ..... Wilcox
Robert Paul Simmons ..... Dale
Thomas Andrew Sims ..... Walker
John Marion Sparrow ..... Lee
Jason Weldon Spencer ..... Florida
Alexander Clifton Stewart ..... Escambia
William Matthew Stewart ..... Jefferson
John Alan Strozier ..... Georgia
William Woodward Sullivan ..... South Carolina
Esther Thompson ..... Randolph
William Rufus Turnipseed ..... Bullock
Charles Spencer Warren ..... Montgomery
John Harrison Watson ..... Lee
Laura Watt ..... Lee
Ulon Victor Wellons ..... Georgia
William Benjamin West ..... Cherokee
James Henry Witherington ..... Conecuh
William Herman Withington ..... Jefferson
John Fletcher Yarbrough ..... Houston.

JUNIOR CLASS.

Charles Harris Adams ..... Dale
Simeon Arthur Allen ..... Shelby
Adrian Fuller Alsobrook ..... Chambers
James Hugh Little Anderson ..... Calhoun
Charles Herschel Bedingfield ..... Lauderdale
Helen Louise Blasingame ..... Lee
Anthony Joseph Bowab ..... Escambia
Richard Courtlandt Bradford ..... Cherokee
Thomas Milton Brannon ..... Barbour
Lyle Brown ..... Choctaw
Marvin Earle Bryant ..... Baldwin
Europe Alexander Caldwell ..... Jackson
Homer Carder ..... Jefferson
Colon Eric Carlovitz ..... Mississippi
Thomas Browning Chambers ..... Limestone
Eugene Collier ..... Morgan
William Cook, Jr. ..... Walker
Eugene Benson Crawford ..... Macon
Frederick Harder Cutts ..... Georgia
Lewis Schuessler Dowdell ..... Chambers
James Hodges Drake ..... Lee
Frederick Myrick Duncan ..... Georgia
George Webster Duncan, Jr. ..... Lee
William Correll Edwards ..... Chilton
James Lawrence Elliott ..... Shelby
James Douglas Foster ..... Lee
Philip Frederick ..... Georgia
James Michael Fullan ..... Lee
John Peyton Fuller, Jr. ..... Madison
Edmond Peter Garrett, Jr. ..... Limestone
James Needham Gilmer ..... Choctaw
William Francis Godwin ..... Georgia
Joseph McCormick Gondran ..... Louisiana
Ivy Moore Griffin ..... Clarke
Paul Stanley Grimes ..... Georgia
Glynn Hightower Grisham ..... Limestone
James Madison Hall, Jr. ..... Bullock
Verner Cyril Hanna ..... Mississippi
Walter Elbert Harrell ..... Lowndes
DeWitt Herndon Holder, Jr. ..... Mississippi
William Louis Holmes ..... Houston
John Edward Howell ..... Dale
E. C. Johnson ..... Georgia
Arthur LaFayette Jones ..... Calhoun
Grady Whittle Jones ..... Escambia
Archie Monroe Kearley ..... Monroe
Henry Thomas Killingsworth, Jr. ..... Georgia
William Duke Kimbrough ..... Wilcox
William Mem Little ..... Georgia
James Henry McIntosh, Jr. ..... Franklin
Forrest Whitlock McMeans ..... Jefferson
Merlin Angelo Martin ..... Mobile
Frederick Jolly Matthews ..... Georgia
George Augustus Mattison, Jr. ..... Clay
Willard Mitford Mobley ..... Jefferson
Minnie Murphy ..... Macon
Christopher John Murray ..... Tennessee
Solomon Joseph Nadler ..... Etowah

Earl Cochran Nichols ..... Clarke
Phillip William Pelts ..... Mississippi
Marvin Lucian Perdue ..... Coffee
Capers Jones Perryman ..... Jefferson
Charles Scudder Peter ..... Shelby
Sidney Clarke Phillips ..... Mobile
Wilbur Arnold Pipkin ..... Florida
Elisha Frederick Pollard ..... Crenshaw
Jefferson William Pruett ..... Coosa
Joel Marbury Rainer ..... Bullock
Russell Sage Reed ..... Etowah
Silas Clifford Rutland ..... Georgia
Alma Smith ..... Lee
Angus Atkinson Smith ..... Geneva
Lansing Taylor Smith, Jr. ..... Calhoun
Henry Clay Snellgrove ..... Marshall
Norman Dantzler Spann ..... Houston
Cohen Elbert Stapp ..... Pickens
William Richmond Stephens ..... Lee
John Patrick Sullivan ..... South Carolina
Nim Belotte Sullivan ..... South Carolina
John Braden Suggs ..... Talladega
Marvin Taylor ..... Marion
Emmett Edwin Terry ..... Madison
John Thomas ..... Marengo
James Wallace Tidmore ..... Hale
Lionel Earl Tisdale ..... Florida
Giles Chambliss Toole ..... Georgia
Cyril Theodore Tucker ..... Mobile
William Henry Tucker ..... Chambers
Roy Hope Turner ..... Tallapoosa
Glover O'Neal Waits ..... Covington
Felix Augustus Walker ..... Russell
Harold Walker ..... Jefferson
Arthur Herbert Williamson ..... Lowndes
George Alfonso Wright ..... Lee
George Herbert Wright ..... Lee

SOPHOMORE CLASS.

James Harvey Allen ..... Calhoun
Robert Stanton Allen ..... Jackson
Charles Carlisle Anderson ..... Walker
Charles Randolph Barksdale ..... Bullock
Daniel Garland Barnes ..... Dale
Earl Daniel Bartlett ..... Clay
Raymond Ruskin Beard ..... Mobile
Robert Marion Beasley ..... Lee
Mafus Bird ..... Marengo
Thomas Lyons Bradley ..... Jefferson
Warren Calvin Brice ..... North Carolina
Oma Wesley Bridges ..... Macon
Andrew Alonzo Burke ..... Houston
Joseph Chandler Burton ..... Marion
Hamlin Alexander Caldwell ..... Jackson
Frederick William Calhoun ..... Jefferson
William Alfred Cammack ..... Clarke
Mortimer Garnett Cassell, Jr. ..... Dallas
Noah Winston Caton ..... Covington
Horace Weldon Chaddick ..... Tennessee
Raymond Austin Chambers ..... Limestone

George Little Clarke ..... Crenshaw
James Barfield Coney ..... Georgia
George Samuel Cooper ..... Lee
John Francis Cooper, Jr. ..... Tuscaloosa
Benjamin Jacobs Coplan ..... Jefferson
Warren Crain ..... Wilcox
John Paul Creel ..... Jefferson
Osler Gilbert Crow ..... St. Clair
Marvin Trowbridge Crymes ..... South Carolina
Edward Pilate Culpepper ..... Henry
Thomas Micajah Culpepper ..... Georgia
William Walter Culver ..... Houston
Richard Buey Deason ..... Walker
Stuart Hubert Dent ..... Barbour
John Bealie DeRamus ..... Chilton
Angus Mancill Dowling ..... Barbour
John Hodges Drake, Jr. ..... Lee
Wells Roney Draughon ..... Geneva
Russell Duff ..... DeKalb
Charles Wesley Edwards ..... Coffee
Albert Elmore ..... Marengo
Lester Lamar English ..... Morgan
Lecil Verland Evans ..... Lamar
Gordon Farned ..... Franklin
Walter Jeremiah Fickling ..... Georgia
Charles Ewell Floyd ..... Lee
George Lunsford Foster ..... Lee
Henry Clarke Frazer ..... Chambers
John Thomas Frazer ..... Chambers
William Williams French, Jr. ..... Jefferson
Robert Calloway Gaines ..... Clay
Junius Roach Gardner, Jr. ..... Jefferson
James Erskine Gillespie ..... Marshall
Leon Bell Gladish ..... Tennessee
Walter Hayne Gordy ..... Louisiana
Harless Grace ..... Walker
Charles Merrill Gray ..... Walker
John Martin Griffin, Jr. ..... Jefferson
Massey Christopher Griffin ..... Clarke
Alfred Flournoy Griggs ..... North Carolina
Isham Belle Gunter ..... Lee
Lindsey Jesse Gunter ..... Lee
Andrew Byron Hall ..... DeKalb
Jesse Pankey Hall ..... Etowah
Wallace Howard Hall ..... Montgomery
William Stephenson Halsey ..... Colbert
John Garmon Hamilton ..... Franklin
Sidney Guenveur Harper ..... Montgomery
Creshull Charles Harrison ..... Florida
Ernest Westcott Harvey ..... Montgomery
Arthur Lee Hayley, Jr. ..... Walker
Oliver Ripley Head ..... Shelby
Clifford Pinkney Hendricks ..... Blount
Howell Payne Hines ..... Lee
Orville Butler Hodges ..... Madison
Joseph Kyle Holley ..... Elmore
Simeon Witt Hooper ..... Marshall
Nichols Leon Howard ..... Autauga
John Monroe Howarth ..... Chambers

Milton Oliver Howle ..... Jefferson
Cecil Daniel Hughes ..... Calhoun
Joseph Frank Hughes ..... Jefferson
Joseph Theodore Hury ..... Jefferson
Edward Clare Jacob. ..... Dallas
Clint Jacobs ..... Coosa
Jerry Leslie Jimmerson ..... Lee
Joel Edward Johnson (Irregular course) ..... Geneva
Richard Malcolm Johnston ..... Jefferson
Edward McCurdy Jones ..... Lee
Joseph Benjamin Kantor ..... Jefferson
John Simmons Kernachan, Jr. ..... Lauderdale
George Barnes Komp, Jr. ..... Mississippi
Melton Winship Kyser ..... Elmore
Edwin Bragg Lancaster ..... Sumter
Matthew Lawson ..... Montgomery
Howard Stuart Leach ..... Montgomery
Lamar Cantelou LeBron (Irregular course) ..... Elmore
Charles Gordon Ledyard ..... Jefferson
Thomas Benjamin Lee ..... Barbour
Frank Underwood Leonard ..... Jefferson
Albert Shelton Lisenby ..... Houston
Peyton Brantley Little ..... Franklin
Oglesby Ashley Lowe ..... Lee
Edward Simeon McCree ..... Tallapoosa
Hugh Lee McDonald, Jr. ..... Georgia
Jesse Newman McLane ..... Florida
Fontaine Alexander Maddox ..... St. Clair
Alfred Shelby Martin ..... Jefferson
James Fontaine Maury, Jr. ..... Mobile
Archie Vernon Meigs ..... Clay
Janssens Joseph Melancon ..... Louisiana
Amos Bender Miller ..... Cullman
Joachim Perrenot Milligan ..... Covington
Jacob Robert Moon ..... Coosa
Frank Stewart Morgan ..... Dallas
Walter Gilliam Murdoch ..... Jefferson
Frederick Musgrove (Irregular course) ..... Marion
Oscar Albin Nelson ..... Jefferson
Thomas Michael Norton, Jr. ..... Bullock
James McCarty Oliver ..... Jefferson
James Cornelius O'Neal ..... Mobile
Winfield Scott Owsley ..... Elmore
Frank Page ..... Houst n
Gerald Walstein Pearson ..... Georgia
James Byrd Pilcher ..... Houston
Ernest Eugene Price ..... Talladega
Grover Washington Ray ..... Tallapoosa
Robert Presly Rebman ..... Lawrence
George Daly Revington, Jr. ..... Tennessee
Adam Olin Riser, Jr. ..... Jefferson
Robert Clyde Rogers ..... Escambia
Crawford Allen Rose ..... Louisiana
Edward Lee Ruff ..... Macon
Roy Lester Salter ..... Jefferson
James Drake Samford ..... Lee
William James Samford ..... Lee
James Ash Scoggins ..... St. Clair
John Phillip Shealy ..... Houston

Claude Sizemore ---------- Fayette
Emmett Sizemore ---------- Fayette
Ernest Gustave Small ---------- Dallas
Charles Paddock Storrs ---------- Elmore
Francis Seaborn Stubbs ---------- Georgia
Dana Gibson Sturkie ---------- Lee
Edgar Cecil Taylor ---------- Crenshaw
Jack Tamblyn ---------- Jefferson
Joe Thomas ---------- Tallapoosa
Edward Hofford Todd ---------- Jefferson
James Bennett Townsend ---------- South Carolina
John Herman Trapp ---------- Mississippi
Joseph Pierce Trotter ---------- Baldwin
Himan Urdong ---------- Jefferson
Erskine Vandegrift ---------- St. Clair
Lewis Candler Vaughn ---------- Georgia
John Virgil Waits ---------- Georgia
Chester Clyde Warren ---------- St. Clair
George Butler Warren ---------- Morgan
Lynn Casey Watson ---------- Jefferson
Carl Eric Wideberg, Jr. ---------- New Jersey
John Bonard Wilson ---------- Lee
William Patrick Wilson ---------- Mississippi
George Raymond Wood ---------- Baldwin
Aaron Montgomery Woodall ---------- St. Clair
Arthur Paschal Woodfin ---------- Perry
Leonard Rudolph Wright ---------- Georgia
Calvin Locke Young ---------- Texas
John Guinn Young ---------- Georgia

FRESHMAN CLASS.

Joe Morris Acker ---------- Etowah
David Clopton Adams, Jr. ---------- Morgan
James Abner Allen, Jr. ---------- Lee
Van Court Andrews ---------- Montgomery
Walter Wild Andrews ---------- Clarke
Alvin Alexander Bailey ---------- Jefferson
Marcus Ralph Barker ---------- Lee
Wyss Leo Barker ---------- Lee
Herbert Bernard Barks ---------- Jefferson
Metullus Ard Barnes (Irregular Course) ---------- Dale
Samuel Thomas Barnes, Jr. ---------- Clarke
Edgar Barnett ---------- Houston
Frank Madison Barnett ---------- Bullock
Chester Arthur Barrett ---------- Texas
A. D. Bell ---------- Talladega
Franklin Evelyn Bell ---------- Florida
Edwin Stratford Bennett ---------- Montgomery
Thomas Clayton Berry ---------- Texas
Harold Lyle Biggin ---------- Lee
Daniel Eugene Bivins, Jr. ---------- Florida
Robert Henry Bowron ---------- Jefferson
Alfred Boyd ---------- Lee
Jacob Murphree Boyd ---------- Pike
Charles Henry Bradley ---------- Coffee
Charles Collier Bright ---------- Crenshaw
Daniel Sharpe Brock ---------- Sumter
John Morgan Brown ---------- Lee
Paul Jones Brown ---------- Morgan
Bert Nathan Bryan ---------- Georgia
James Lake Buchanan ---------- Colbert

Bartow Bullard ..... Coffee
John Kavanaugh Bullock ..... Montgomery
Henry Bernard Burke ..... Florida
Joe Leland Burnett, Jr. ..... Jefferson
William Fitzhugh Byrd ..... Jefferson
Norman Glenn Camp ..... Georgia
Lamar Cantelou ..... Elmore
Williams Caldwell Chambers ..... Limestone
Louise Chrimes ..... Massachusetts
William Jefferson Christian ..... Jefferson
Ralph Colman Christopher ..... Choctaw
Leigh Malet Clark ..... Crenshaw
Paul Clarke ..... Walker
Benjamin White Clendinen, Jr. ..... Houston
Eugene Alexander Colbert ..... Tennessee
Frederick Lawson Cook ..... Georgia
Rodney Copeland ..... Macon
Joseph Monroe Corry ..... Walker
William Madison Cosper ..... Colbert
David Purser Cowen ..... Jefferson
Lawrence Welch Crane ..... Jefferson
Francis Lauren Crocker ..... Walker
Garland Richardson Crow ..... Lauderdale
Roland Anderson Crump, Jr. ..... Montgomery
Edward Fletcher Darby ..... Jefferson
Clifford Gilmore Davis ..... Texas
Clyde Odeska Davis ..... Tallapoosa
Albert Perry DeShazo ..... Jefferson
Mason James Dillard ..... Jefferson
Frank Perry Dobson ..... Talladega
David Merrick Dowdell, Jr. ..... Florida
Madie Dowdell ..... Lee
William James Dowdell ..... Lee
Paul Lamar Draper ..... St. Clair
Joe Driver ..... Randolph
Thomas Duboise ..... Franklin
Clyde Dunn ..... Lamar
William Joseph Dunn ..... Conecuh
William Cornelius Eppes ..... Marengo
Walter Crenshaw Ernest, Jr. ..... Mobile
Samuel Wesley Esslinger ..... Madison
James Lewis Evans ..... Jefferson
Joel Daniel Feagin ..... Bullock
Helen Preston Field ..... West Virginia
Wayne Arnold Finger ..... Mississippi
James Lavoisier Fulghum ..... Florida
Melville Gray Fuller ..... Madison
John Edgar Funderburg ..... Calhoun
Louis McLean Funderburg ..... Calhoun
Leonard Stephen Furr ..... DeKalb
Harry Forney Garretson ..... Washington
Henry Stanley Genius ..... Louisiana
Ludwell Evans Gissendanner ..... Dale
Garner Ashby Goodbread ..... Dale
George Ogilvie Greene ..... Bibb
Virgil Roy Greene ..... Winston
Melvin Hagedorn ..... Etowah
Richard Lester Haggard ..... Etowah
Herbert Louis Hahn ..... Jefferson

Edward Flemmon Hall ..... Jefferson
Edward Cardie Hanson ..... Louisiana
Phillip Henry Hardie ..... Calhoun
Joseph Crosland Hare ..... Lee
Grange Harold Harper, Jr. ..... Monroe
James Calhoun Harris, Jr. ..... South Carolina
John Evander Harris, Jr. ..... Sumter
William Wesley Hatcher ..... Dale
Lyle Jorman Hillman ..... Dallas
Robert Charles Hillman ..... Dallas
Linnie Pitt Hodges ..... Houston
Warren Speigner Hoffman ..... Lee
Joseph Alfred Holland ..... Madison
Harvey Holstun ..... Tallapoosa
Hollis Oswald Holstun ..... Tallapoosa
Joseph Meyer Holzman ..... Dallas
Mather Daniel Hood ..... Etowah
Roy Walthal House ..... St. Clair
Curtis Samuel Howard ..... Bullock
Jesse Wilfred Howe ..... Madison
Thomas Francis Hudson ..... Tennessee
Michael Huey ..... Pike
Frederick Hunt ..... Chambers
James Daniel Hurlbert ..... Sumter
George Bullock Inge ..... Mobile
Mose Jacobs ..... Jefferson
Frank Inge Jeffrey ..... Wilcox
Charles Hanson Johnson ..... Tallapoosa
Reuben Lee Johnson ..... Tallapoosa
Sidney Walton Johnson, Jr. ..... Lee
Charles Nathan Johnston ..... Marengo
Eugene Rhodes Johnston ..... Jefferson
George Edward Johnston, Jr. ..... Washington
Danby Hobson Jones ..... St. Clair
Emmett Leslie Jones ..... Barbour
Edgar Keenon, Jr. ..... Jefferson
William Pierce Kelly ..... Madison
Thomas Ford Kendrick ..... Dallas
Alfred Daniel Killian ..... Tennessee
John DeLoach King ..... Lee
John Kenneth Kirkwood ..... Lee
George Glenn Lamar ..... Lee
Colquitt Hill Lane ..... Lee
Charles Thomas Lehman, Jr. ..... Jefferson
Felix Newman Leslie ..... Madison
Neilmore Letson ..... Walker
Elkan Leva ..... Dallas
Jack Marc Linx ..... Jefferson
Amsie Horton Lisenby ..... Houston
Lane Wilson Lollar, Jr. ..... Walker
Edwin Marshall Lovelace ..... Escambia
John Witty Lovin ..... Morgan
Lige Loy, Jr. ..... Jefferson
William Charles McCall ..... Georgia
Henry White McCorkle ..... Perry
Webb McCoy ..... Marengo
Henry Grady McCrary ..... Walker
Ellis Pelham McDonald ..... Jefferson
Frank Sidney McFaden ..... Montgomery

Henry Curtis McFarlin ..... Florida
George Dewey McIsaac ..... Tennessee
Dacy B. McVay ..... Clarke
Charles William McWillie ..... Mississippi
Norman Wilfred Mandy ..... Jefferson
Robert Lee Martin ..... Jefferson
William Burress Martin ..... South Carolina
Wilbur Lee Martin (Irregular course) ..... Limestone
Julius Patrick Maxwell ..... Dallas
Daniel Lewis Meade ..... Dallas
Benjamin Watson Melvin ..... Tuscaloosa
George Michael Meriwether ..... Marengo
Joseph Marion Merritt, Jr. ..... Houston
Andrew Campbell Mitchell, Jr. ..... Jefferson
Henry Banks Mitchell ..... Georgia
Guy Hicks Morgan ..... Crenshaw
Joseph Worthington Morris ..... Walker
Emory Morton ..... Bullock
Andrew Clinton Moye, Jr. ..... Georgia
Morgan Russell Murrell ..... Texas
Ralph Dewey Neal ..... Jefferson
Carl Godlove Neidhardt ..... Jackson
Maine Eyric Nettles ..... Montgomery
James Dannely Newton ..... Houston
Wendell Oliver Neel ..... Arkansas
Charles George Ollinger, Jr. ..... Mobile
Rodney Mattis Ollinger ..... Mobile
Lee Percy Oliver ..... Tallapoosa
William Palmer ..... Wilcox
Edwin Lewis Parker ..... Mississippi
William Vandyke Pattillo ..... Morgan
Oliver Kennedy Perkins ..... Florida
Lee Colquitt Perry ..... Georgia
Lyman Loomis Peterson ..... Coosa
Emmett Eugene Pinkston ..... Georgia
Paul Augustus Potts (Irregular course) ..... Georgia
Elwyn Nimmons Powell ..... Georgia
Cyril Hugo Pruet ..... Lee
Russell Aubrey Pruet ..... Lee
Clyde Augustus Pruitt ..... Wilcox
Gaston Randman ..... Jefferson
Ped Ray ..... Covington
Albert Miles Redd ..... Bullock
Cyrus Eugene Reid ..... Montgomery
Ralph Lawson Riley ..... Georgia
William Leonard Riley ..... Jefferson
Edward Auberts Roberts ..... Mobile
Sloan Rowan ..... Lowndes
Robert Edgar Rutledge ..... Jefferson
Charles Max Sabotka ..... Morgan
Edgar Franklin Sanborn ..... Georgia
Joseph Sanders ..... Houston
Ezra Wilson Sartain ..... Walker
Julius Douglas Schaub ..... Barbour
Charles Scott ..... Jefferson
Eunice Brooks Seale ..... Hale
Ira Jackson Sellers, Jr. ..... Jefferson
James Wellington Shealy ..... Florida
James Wiley Shepherd, Jr. ..... Walker

Edward Cruch Sherling ..... Butler
William Gurley Simpson, Jr. ..... Wilcox
Edwin Huson Sims, Jr. ..... Georgia
Charles Alstin Smith ..... Talladega
Thomas Long Smith, Jr. ..... Jefferson
Weldon Theodore Smith ..... Georgia
Ralph Madison Snider (Irregular course) ..... Jefferson
Charles Hiram Snuggs ..... Randolph
Alexander H. Speigner ..... Houston
William Philip Spratling ..... Lee
Gladys Steadham ..... Lee
Cecil James Steele ..... Franklin
Henson Knowles Stephenson ..... Dallas
William Allen Stevenson ..... Macon
Robert Lee Sutton, Jr. ..... Dallas
Murray Taylor ..... Marion
Roy Leonard Thomas ..... Limestone
Wortham Ficquett Thomas ..... Tallapoosa
Thomas Lee Tidmore ..... Hale
Urman Totty ..... Elmore
Eugene Robbins Vaughn ..... Dallas
John Vernon ..... Jefferson
Graham Stewart Vinson ..... Florida
James Dallas Wade, Jr. ..... Montgomery
Dewey Clyde Waits ..... Jefferson
Charles Davis Walker, Jr. ..... Marengo
Preer Walton ..... Georgia
Birma Leon Ward ..... Houston
Charles Lenard Warner, Jr. ..... Clarke
Edwin Fontaine Warren ..... Lee
Luther Board Watson, Jr. ..... Wilcox
Joseph Tee Watt ..... Lee
Edgar Reid Watts ..... Walker
John Dayton Waugh ..... Montgomery
John Louis Whatley ..... Lee
Leta Casey Whatley ..... Lee
John Eric Wideberg ..... New Jersey
David Dewey Wier ..... Mississippi
Ernest Albert Wilkinson ..... Autauga
Edward Everett Wilkinson ..... Clarke
Jerry Isaac Williams ..... Jackson
Vester Vanderbilt Williams ..... Marion
Lawrence Earle Williamson ..... Clarke
William Herman Winton ..... Butler
Allen Killebrew Wood ..... Jefferson
Ralph Mason Wood ..... Dallas
Silas McWilliams Yarbrough ..... Limestone

TWO-YEAR COURSE IN AGRICULTURE.

SECOND YEAR.

Edward Fulmer Armstrong ..... Jackson
Arthur Clayborn Cadenhead ..... Lee
John Hunter Carr ..... Mississippi
John Roger Chambliss ..... Autauga
Lamont Major ..... Jefferson
Lewis Joseph Raemon ..... Jefferson
Lee Roy Roberts ..... Calhoun
William Harper Spencer ..... Greene
William Alberto Stiles ..... Jefferson
Richard Allen Vinton ..... Tennessee

FIRST YEAR.

James Fortner Agee ..... Marengo
James Tait Beck ..... Wilcox
Luther Exelle Boozer ..... Marengo
Jefferson Leon Clay ..... Dallas
Albert Darrington Gayle ..... Dallas
William Daniel Gillis ..... Florida
Jeremiah Baxter Harpold ..... Texas
Baldwin Walton Harvey ..... Montgomery
Joshua Oscar Kelly, Jr. ..... Madison
Joe Wheeler Malone ..... Jefferson
Charles Lewis Mathews ..... Montgomery
Clarence Morris ..... Talladega
Rufus Elisha Poole ..... Butler
Samuel Shepherd ..... Walker
Julian Marsh Tait ..... Wilcox
William Biggers Whatley ..... Lee

TWO-YEAR COURSE IN APPLIED ELECTRICITY.

SECOND YEAR.

Golden Cecil Cruise ..... Dallas
Howard Lamar, Jr. ..... Lee
Joe Memoli ..... Jefferson
Fletcher Whitfield Powers ..... Tuscaloosa

FIRST YEAR.

Louis Cornelius ..... Etowah
Eugene C. Coston ..... Jefferson
George Williamson Cushing ..... North Carolina
Jesse Bruce Hain ..... Dallas
Robert Lee Howard ..... Macon
Dozier Lester ..... Mississippi
Charles Augustus Miller ..... Marengo
James Joseph Paul ..... Jefferson
Alfred Adkins Tharpe ..... Jefferson
Gautier Foster Thompson ..... Macon

TWO-YEAR COURSE IN MINING

FIRST YEAR

Perry Caldwell DeBardeleben ..... Dallas

PRE-MEDICAL COURSE.

William Wallace Barnett ..... Houston
Gill Wyeth Blackshear ..... Florida
Otis Winfield Britt ..... Covington
Jerome Cochran Chapman ..... Geneva
George Andrew Hazelwood ..... Jefferson
Lucien Hill ..... Pickens
Howard Grey Holland ..... Houston
Marcus Crew Hunt ..... Chambers
Robert Edward Lacy ..... Jefferson
Louis Schroades McMurray ..... Pennsylvania
John Comer Nichols ..... Clarke
Julian Gary Palmer ..... Lee
Lee Palmer ..... Washington
Byron Yarbrough Pennington ..... Covington
Richard Olney Russell ..... Morgan
Oscar Grady Segrest ..... Tallapoosa
Edwin LaRue Spence ..... Georgia
Archie Edwin Thomas ..... Coosa

IRREGULAR STUDENTS.

Joseph Greene Allen ..... Montgomery
Daniel Marshall Andrews ..... Montgomery
John Joseph Beggs ..... Jefferson
Mose Bilder ..... Tennessee
Thomas Henry Burton, Jr. ..... Calhoun
Giles Homer Carlovitz ..... Louisiana
Elmer Rice Chambliss ..... Autauga
Frank Marion Cottle ..... Etowah
Desmond Crain ..... Wilcox
Berry Cruse ..... Jefferson
Edwin Didlake ..... Jefferson
Thomas White Doster ..... Jefferson
Arthur Maultsby Dowell ..... Jefferson
Harry Sisson Fullwood ..... Jefferson
John McKee Gould, Jr. ..... Greene
Maurice Greenburg ..... Jefferson
Adolphus Alexander Hale ..... Sumter
Charles Harvey Ham ..... Etowah
Wallace Redding Hartsfield ..... Jefferson
Grover Jackson Hornsby ..... Elmore
Milo Barrett Howard ..... Montgomery
Earle Cothran Jones ..... Calhoun
Raymond Boone Kelly ..... Jefferson
Admiral Dewey Kilgore ..... Randolph
Robert Duane Knapp ..... Lee
Imogene Inge Little ..... Mobile
James Thomas Logan ..... Coosa
Cummings Harrington McCall ..... Montgomery
Edward Flack McDuffie ..... Etowah
Gastin Alexander McKnight ..... Marengo
Victor Irwin Masters ..... Georgia
Marcus Gatewood Milligan ..... Cleburne
Daniel Devote Monroe ..... Jefferson
James Gay Nall ..... Jefferson
Burke Dulain Ponder ..... Georgia
Manuel Gomez Ribeiro Netto ..... Brazil
Howard Sanford Seay ..... Georgia
William Lee Sims ..... St. Clair
Frank Western Stevens ..... Dallas
William Henry Stoves ..... Jefferson
Weston McLean Sullivan ..... Sumter
Young Wall ..... Limestone
Walter Alexander Whatley ..... Lee
John Stanton Woodson ..... Walker
Eugene Lyon Wynne ..... Marengo

DEPARTMENT OF PHARMACY.

FOUR-YEAR COURSE.

SENIOR CLASS.

William Henry Philpot ..... Macon

THREE-YEAR COURSE.

FIRST YEAR.

William Gerard Fowler ..... Montgomery
Benjamin Hartwell Hill ..... Houston

TWO-YEAR COURSE

SECOND YEAR.

Frederick Armstrong ..... Calhoun
Robert Turpee Ashurst, Jr. ..... Tallapoosa
Henry Grady Buchanan ..... Tennessee
John Rufus Evans ..... Georgia
Ford Benson Patterson ..... Baldwin
Reuben Jackson Plant ..... Tallapoosa
Thomas Simes ..... Marshall
Milton LeGrand Wood, Jr. ..... Montgomery

FIRST YEAR.

McKinley Gassett ..... Dale
Reuben Early Ginn ..... St. Clair
Edwin Moody ..... Pickens
Thomas Boyd Price ..... Pickens
Guy Elias Sharpless ..... Geneva
Selman Lamar Threadgill ..... Dallas
George Mark Wood ..... Montgomery
John Melvin Young ..... Mobile

IRREGULAR STUDENTS.

Alvie Omega Mooneyham ..... Barbour

COLLEGE OF VETERINARY MEDICINE

THIRD YEAR.

Thomas Walter Boman ..... Cleburne
Richard Taylor Compton ..... Marengo
Francis B. Cook ..... Choctaw
Turner Mitchell Dennis ..... Chilton
William Francis Donahue ..... Lee
John Hart Fussell ..... Geneva
Alton R. Gissendanner ..... Dale
Thaddeus Lamar Glenn ..... South Carolina
Roy Howard Herron ..... Lee
Robert Russell Jeter ..... South Carolina
Judson Monroe Jowers ..... Elmore
Dorrance D. Major ..... Mississippi
Allen Jesse Miller ..... Clark
Bruce William Murray ..... Mobile
William Sumter Reynolds ..... Pike
James Ralph Sullivan ..... Montgomery
Fletcher Leroy Vinson ..... Lee
Everett Sompayrac Winters ..... South Carolina

SECOND YEAR.

John Howard Beckham ..... Hale
George Barney Bradshaw ..... Mississippi
William Lipscomb Douglass ..... Marengo
Robert Harper Hamner ..... Pickens
Everett Lee Harper ..... Pickens
McKenzie Heath ..... Coffee
Walter Hudson Hines ..... Monroe
John Bryant Jordan ..... Pickens
Clyve Valdez Presley ..... Butler
James Bennett Randall ..... Baldwin
James Daniel Ratchford ..... Chambers
Raymond R. Sally ..... South Carolina
R. O. Suddath ..... Georgia

FRESHMEN.

Marshall Reuben Bentley ..... Crenshaw
Benjamin Z. Burleson ..... Marion
Emis Augustus Davis ..... Georgia
Upshaw Franklin Gibson ..... Clay
James Warren May ..... Mobile
William Albert Neal ..... Jefferson
Frederick Davis Patterson, Jr. ..... Randolph

IRREGULAR STUDENTS.

William Posey Claughton ..... Chilton
Edward Pettus Lacy, Jr. ..... Dallas
Wilkie Hudson Lee ..... Lowndes
Sanford Grey Mayes ..... Greene
Frank Kirk Peterson ..... Dallas
Collis Deal Thompson ..... Pike

SUMMARY.

Graduate Students	9
Senior Class	99
Junior Class	95
Sophomore Class	168
Freshman Class	254
Pharmacy	20
Veterinary Medicine	44
Pre-Medical Course	18
Two-Year Course in Mining	1
Applied Electricity	14
Two-Year Course in Agriculture	26
Irregular Students	45
	793
Deduct for names counted twice	1
Total	792

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

English	574	Mining Engineering	6
History	541	Architecture	18
International Law	205	Mechanical Drawing	263
Civics	24	Chemistry	463
French	44	Agronomy	162
German	17	Animal Husbandry	181
Spanish	64	Physics	271
Latin	43	Botany	137
Education	128	Entomology	36
Political Economy	30	Zoology	80
Mathematics	525	Horticulture	128
Chemical Laboratory	191	Forestry	15
Geology	74	Veterinary Medicine	44
Mineralogy	23	Landscape Gardening	57
Civil Engineering	52	Machine Design	77
Surveying	238	Descriptive Geometry	114
Electrical Engineering	179	Mechanic Arts	363
Radio Engineering	27	Pharmacy	20
Mechanical Engineering	235	Military (R. O. T. C.)	638

RESIDENCE BY STATES.

Alabama	652
Georgia	52
Florida	19
Mississippi	17
Tennessee	14
South Carolina	12
Louisiana	9
Texas	6
North Carolina	4
New Jersey	2
Arkansas	1
Kentucky	1
Massachusetts	1
Pennsylvania	1
West Virginia	1
Brazil	1
Mexico	1

INDEX

	PAGE
Academic Year	156
Admission	25
Admission on Certificate	27
Admission from other Colleges	31
Agricultural Club	145
Agricultural Experiment Station Staff	9
Agronomy	51, 58
Alumni	144
Animal Husbandry	21, 59
Architecture	18, 47, 49
Architectural Engineering	48, 103
Astronomy	73
Athletics	149
Band	143, 159
Boarding	147
Botany	19, 114
Buildings of the College	23
Cadet Officers	157
Calendar 1918-1919	3, 156
Catalogue of Students	166
Certificate Schools	28
Changes in Course	30
Chemical Engineering	19, 43
Chemistry	19, 44, 52
Civil Engineering	12, 39
Classification of Students by Residence	181
Classification of Students by Studies	181
College Established	10
College, Object of	10
College of Agricultural Sciences	19, 50, 53, 107
College of Engineering, Mines and Architecture	12, 39
College of Veterinary Medicine and Surgery	22, 60
Committees of the Faculty	8
Conditions, Removal of	30
Courses of Instruction	31, 37, 61
Degrees	33
Discipline	146
Distinctions	148
Distinguished Students	161
Drawing	17, 96
Economics	61
Education	129
Electrical Engineering	12, 40
Electricity, Applied	45
Engineering Society	144
English	61
Entomology	21, 120
Examinations, Entrance	25
Examinations, Monthly and Term	148
Expenses	154, 155
Exercises Required	30
Experiment Station Council	9
Extension Work	126
Faculty and Officers	5
Farm	19
Fees, Alabama Students	154

INDEX

	PAGE
Fees, Non-Residents	154
Fee, Contingent	153
Fees, Laboratory	153
French	68
General Course	37
German	69
Geology	16, 94
Graduate Courses (see each department also)	34
Graduates, 1917, Roll of	163
Gymnasium	24, 145
History	22, 65
Honor Scholarships	148
Honor Students	161
Honor System	149
Horticulture	20, 58
Laboratories	36
Laboratory Facilities:	
Agriculture	19
Animal Husbandry	21
Architecture	18
Botany	19
Chemistry	19, 24
Civil Engineering	12
Drawing	17
Entomology	21
Electrical Engineering	12
History	22
Horticulture	20
Mechanic Arts	14
Mechanical Drawing and Machine Design	17
Mechanical Engineering	13
Military Tactics	22
Mineralogy	16
Mining Engineering	16
Ore Dressing	17
Pharmacy	20
Physics	22
Physiology	22
Veterinary Science	22
Laboratory Fees	153
Latin	65, 67
Library	24, 152
Literary Societies	144
Location	155
Mathematics	71
Mechanic Arts	14, 87
Mechanical Drawing and Machine Design	17, 96
Mechanical Engineering	13, 41, 87
Medical Attendance	155
Metallurgy	44
Military Drill	147
Military Organization	73, 157
Military Science and Tactics	73
Military Science, Distinguished Students in	157
Mineralogy	16, 94
Mining Engineering	16, 42, 46, 93
Modern Languages	68
Museum	153

INDEX

	PAGE
Non-Resident Students	154
Objects of the College	10
Officers, Cadet	157
Officers, College	7
Officers of Experiment Station	9
Organization, Colleges	11
Pharmacy	20, 53, 54, 55, 127
Pre-Medical Courses	52
Psychology	61
Physics	22, 72
Physiology	22
Post-Graduate Courses	34
Prizes	151
Professional Degrees	35
Public Speaking	62, 63
Records	148
Re-Examinations	141
Registration	25
Regulations	139
Religious Services	147
Reports	141
Requirements for Admission	25
Road Foremen and Inspectors, Course for	45
Scholarships	149
School of Agricultural Education	57, 129
Societies, Literary	144
Society of the Alumni	144
Spanish	71
Special and Irregular Students, Regulations	27, 30
Station Council	9
Students, Roll of	166
Surgeon	155
Surveying	12, 79, 80, 82
Thesis	155
Trustees	4
Uniforms	73, 153
Veterinary Medicine	22, 60, 133
Veterinary Medical Association	145
Wireless Telegraphy	46
Women Admitted to College	29, 142
Young Men's Christian Association	143

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Vol. XIV No. 2

THE BULLETIN

OF THE

ALABAMA POLYTECHNIC INSTITUTE

AUBURN

CATALOGUE
1918-1919

ISSUED MONTHLY
BY THE INSTITUTE
APRIL, 1919

Entered as Second-Class Matter, March 29, 1915, at the Post-Office, at Auburn, Ala., under the Act of August 24, 1912.

CATALOGUE

OF THE

ALABAMA POLYTECHNIC INSTITUTE

STATE COLLEGE

FOR THE BENEFIT OF
AGRICULTURE AND THE MECHANIC ARTS

AUBURN, ALABAMA
1919

1919
POST PUBLISHING COMPANY
OPELIKA, ALA.

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COLLEGE CALENDAR 1919-1920

Summer Session	June 9 to July 18, 1919
Examination for Admission Begins	Monday, Sept. 8, 1919
Session Begins	Wednesday, Sept. 10, 1919
First Term Begins	Wednesday, Sept. 10, 1919
Mid-Term Examinations	Oct. 20, 21, 22, 1919
Literary Society Celebration	Nov. 27, 1919
First Term Ends	Dec. 19, 1919
Second Term Begins	Jan. 2, 1920
Mid-Term Examinations	Feb. 7, 9, 10, 1920
Senior Class Exercises	Feb. 22, 1920
Literary Society Celebration	Feb. 22, 1920
Second Term Ends	Monday, March 22, 1920
Third Term Begins	Monday, March 22, 1920
Senior Theses Reported	May 1, 1920
Declamation Exercises	May 1, 1920
Field Day	May 1, 1920
Final Examinations Begin	Saturday, May 15, 1920
Junior Class	Saturday, May 29, 1920
Commencement Sermon	Sunday, May 30, 1920
Annual Meeting of Trustees	Monday, May 31, 1920
Alumni Day	Monday, May 31, 1920
Senior Class Orations	Monday, May 31, 1920
Festival of Lights, 8 P. M.	Monday, May 31, 1920
Commencement Day	Tuesday, June 1, 1920

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Committee on Examination of Special Students—Professors Wilmore, Dunstan, Blake, Funchess.

Committee on Public Lectures—Professors Petrie, Atkinson, Shi.

Committee on Library—Professors Rutland, Atkinson, Duggar.

Committee on Athletics—Professors Ross, Dunstan, Hare.

Committee on Grounds and Buildings—Professors Wilmore, Starcher, Callan.

Committee on Alumni Appointments—Professors Shi, Petrie, Ross, Wilmore, Duggar.

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J. F. DUGGAR, Director of Experiment Station

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M. J. Funchess, Associate.
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O. H. Sellers, Assistant.
M. H. Pearson, Assistant.

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Robert Stratton, Assistant.

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G. L. Burleson, Assistant.
F. W. Burns, Assistant.

EDITOR:

Leslie L. Gilbert.

ORIGIN AND PURPOSE

The Alabama Polytechnic Institute is a distinctive school of science and its applications; being also the State College for the benefit of Agriculture and the Mechanic Arts, established by the State in 1872 by endowing it with the land grant appropriation made by the United States Congress in 1862.

The leading object of the Institute, in conformity with the Act of Congress and the Acts of the State Legislature, is to teach the principles and applications of science.

In its courses of instruction it gives prominence to the sciences and their applications, especially to those that relate to agriculture and the mechanic arts; and at the same time the discipline and liberal education obtained by the study of languages and other sciences are not neglected.

All students are required to study the English Language. The Latin, French, Spanish and German languages are also taught, and opportunity for their study is offered to students in any course.

The special and technical instruction given is thus based on a sound, general education.

In its different courses of education, work of great value to the youth of the State is accomplished by fitting them by a thorough science-discipline, in which manual training in the lower classes is made a prominent feature, for the successful and honorable performance of the responsible duties of life.

While every attention is given to the mental discipline of the students in endeavoring to train them to habits of accurate scientific thought, and thus to qualify them for the duties of life, their moral and Christian training will always constitute the prominent care and thought of the faculty. The Institute thus endeavors to educate as well as instruct, to form character as well as give information of value.

The Land-Grant Colleges of the United States were founded upon an Act of Congress, July 2, 1862, donating public lands to the several States, "For the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding military tactics, to teach such branches of learning as are related to agriculture and mechanic arts; for the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The College at Auburn consists of three distinct, and well-nigh separate organizations, differing in this respect from the ordinary organization called "the College;" namely, (1) The College, (2) The Experiment Station, (3) Agricultural Extension Service.

I. THE COLLEGE

In the original organization of the College on the 20th day of March, 1872, the Board of Directors, keeping steadily in view the terms of the charter, established the departments (1) scientific Agriculture; Animal Husbandry; Rural Agriculture, etc.; (2) Civil and Mining Engincering, road Engineering, surveying, assaying, treatment of ores, and metallurgy; (3) Chemistry, agricultural chemistry, analytical chemistry,—the institution thus taking the lead of all Southern states in the establishment of these practical departments. This was a broad comprehensive interpretation of the purposes of the Morrill Act establishing the Land-Grant Colleges. It anticipated many of the subjects of instruction that have only recently been formulated. (4) In 1885, with increase in income, the first department of manual training and mechanic arts of the South was established. (5) In 1889, was established one of the first departments of Biology, the first professor becoming later the head of the great department of Biology at Cornell University. (6) In 1891, the first department of electrical engineering, and (7) in 1905, the first department of telephone engineering was established. (8) In 1907, the first department of architecture was established. (9) In 1884 the college in order to still further limit its activities more strictly and technically to the leading object of its creation and to exclude itself absolutely from any province of educational work given in the state, abandoned the time-honored course and degree of Bachelor of Arts, since which time it has conferred only one baccalaureate degree, that of Bachelor of Science. The renunciation was a supreme break with the old exclusive classical curriculum.

The work of the college is now largely devoted to the study of the *natural sciences and their application to practical life.* This scientific and practical education is based upon a sound and thorough education in history, language and mathematics. The proportion of these two elements in education has been the constant study of the institution since its foundation in 1872, and the success of its graduates attests the sound wisdom of its policy and practice.

ORGANIZATION

The instruction offered by the College is arranged in six divisions: (1) College of Engineering, Mines and Architecture, (2) College of Agricultural Sciences, (3) Academic Departments, (4) College of Veterinary Medicine, (5) Department of Pharmacy, (6) School of Agricultural Education. Students

in the different divisions of the college receive instruction in other departments as shown in the courses of study prescribed for degrees.

I. The College of Engineering, Mines, and Architecture includes the following departments: (1) Civil Engineering, (2) Electrical Engineering, (3) Mechanical Engineering, (4) Mining Engineering, (5) Chemical Engineering, (6) Chemistry and Metallurgy, (7) Architecture, (8) Architectural Engineering, (9) Mechanical Drawing and Machine Design, (10) Manual Training.

II. The work of the Agricultural College is divided into the following groups: (1) Agronomy (field crops, cotton, corn, etc.), (2) Animal Husbandry, (3) Horticulture, (4) Veterinary Science, (5) Botany, (6) Entomology, (7) Agricultural Chemistry, (8) Plant Pathology.

III. A degree course is offered in the following subjects: Education, political economy, English, history and Latin, modern languages, mathematics, physics, military science and tactics.

IV. The College of Veterinary Medicine comprises the following departments: Veterinary medicine, physiology, surgery, anatomy, therapeutics, pathology, histology, bacteriology, obstetrics, infectious diseases, meat inspection, milk inspection, and animal parasites.

V. The Department of Pharmacy offers three degree courses as follows: four-year course (B. S.); three-year course (Ph. C.); two-year course (Ph. G.).

VI. The School of Agricultural Education offers courses which lead to the degree, Bachelor of Science in Agricultural Education.

II. EXPERIMENT STATION

The institution is not only an educational organization, but also a research and extension organization whose function is (1) to study the problems of every phase of farm life, and (2) to convey needed information as effectively as possible to those who live on the soil.

As has been well said, "Experience of a few years demonstrates that but little appreciable benefit could accrue to the agriculture of the state by educating only the limited number of young men attending agricultural colleges, but that to benefit agriculture by the application of modern sciences, there should be provision made for the scientific investigation and research in subjects relating thereto, results of which should be distributed to those directly engaged in farming."

Hence, in 1887 Congress passed an Act establishing, in connection with these agricultural colleges, experiment stations,

and there has been universal recognition by the farming interests throughout the state and the nation of the highly beneficial results and direct practical value of experiments conducted through the Alabama Experiment Station.

The testing and breeding of seeds (cotton, corn, oats and all staple crops), the testing of fertilizers under thousands of varying conditions, the analysis of commercial fertilizers, the promotion of profitable production of beef, pork, poultry and sheep, the conservation of soils, improved methods of cultivation, drainage, the use of improved farm implements, the organization of farmers' institutes, boys' and girls' farm and garden clubs—this incomplete catalogue of a few of the leading activities of the experiment station indicates the tremendous range and value of the work.

III. AGRICULTURAL EXTENSION WORK

The chief means by which this agricultural work has been conducted and by which the benefits of experiment work are carried to the farmer, has been the appropriations made under the title of Local Experiment or Boll Weevil Act. Under this act popular experiments which are being conducted throughout the state in agriculture, drainage, horticulture and the raising of hogs, cattle, etc., are made of direct practical value to the farmer. Experiments in the value of fertilizers, tests of the varieties of cotton, corn, oats, alfalfa, etc., have been made in sixty-seven counties of the state under the most careful supervision, and thus affording highly valuable results according to local conditions of soil, climate, humidity, etc.

THE SMITH-LEVER LAW

It is difficult to overstate the value of this Federal Law. Funds derived therefrom, together with state funds to match it dollar for dollar, are the most productive investment made by the state and the nation. The percentage increase of production under demonstration methods over production of the average farmer of Alabama is 155 per cent. This simple figure in a nutshell contains the story of the possibilities of the agricultural production in Alabama under the best inspiration and guidance.

BOYS' CORN CLUBS AND GIRLS' CANNING CLUBS

This highly important department, organized July 1st, 1909, at present extends its benign influence into nearly every country home in Alabama. The state of Alabama, all outdoors, is, as it were, the schoolhouse of this form of education. This mighty army of boys and girls constitutes a most promising student body. Perhaps the paramount good of this work is

the great interest aroused on the part of the young people of the country in the production and conservation of crops. The point of view of these thousands of young people is entirely changed from the side of the town to the side of the country. Country life is thus organized and the possibilities of scientific farming emphasized. By the organization of this elementary form of production, the young people of Alabama are becoming more and more organized in all forms of rural life—in social and financial co-operation, marketing, etc., as well as, the production of crops.

FACILITIES FOR INSTRUCTION

The Institute possesses facilities for giving laboratory instruction in history, Latin and the departments of applied science.

COLLEGE OF ENGINEERING, MINES, AND ARCHITECTURE

I. Civil Engineering.—The department of civil engineering is located in Broun Hall and occupies two lecture rooms, a drafting room, an office, an instrument room and a road materials laboratory. It is equipped with transits, levels, plane tables and other instruments necessary for giving field practice in the several branches of surveying.

A very complete camping outfit consisting of tents, cots, stools and kitchen and mess tent outfit, is available for use in the summer camp and school of surveying.

The drafting room is spacious and well lighted, and is equipped with well appointed drawing desks, tables, filing cases, models of bridges and roofs, and a large number of blue prints donated by various bridge companies for study and comparison by students in bridge and structural design.

In practical hydraulics, the college water works system, including pipe lines, pumps, stand pipe, bored wells with air lifts, fire hose and nozzles, etc., are available for use of the students; and the students also determine the flow in several natural streams with aid of current meters and weirs. There is a number of large and small hydro-electric plants relatively near Auburn, and visits of inspection are made by students to these plants.

II. Electrical Engineering.—In the engineering building four rooms and two offices are used by the department of electrical engineering. Two rooms are class rooms, another is used for the telephone laboratory, and the fourth is a laboratory for electrical measurements.

The wiring in this building is arranged so that alternating and direct current of various voltages for power, lighting, and experimental purposes can be delivered to any room.

In connection with the laboratories there is installed a repair and construction shop furnished with a variety of hand tools and with power driven machine tools.

A large amount of electrical testing and measuring apparatus as well as commercial machinery has recently been installed in the laboratories.

(*a*) The electrical measurement laboratory is furnished with a variety of resistance boxes, bridges, galvanometers, standard cells, condensers, etc., as well as two photometers. In addition to the laboratory instruments proper, just noted, the department

is provided with representatives of most of the types of commercial ammeters, voltmeters, and indicating and recording wattmeters for A. C. and D. C. work. There is also a 30,000 volt transformer for break-down tests of insulating materials.

(*b*) The telephone laboratory is provided with a full line of telephonic apparatus, telephones, relays, condensers, plugs, jacks, lamp and other signals, etc., representative of the Bell and a number of independent telephone companies.

Single pieces are so mounted that they can be connected up in any desired manner and thus the connections of any particular system can be made up and tested out.

Twenty cells of Edison storage battery are used to furnish energy for a board equipped for common battery and magneto service with trunking circuits. This board is a standard 100 line board equipped with one strip of twenty answering and mutiple jacks, ringing, listening keys, and cord signals for four cords.

(*c*) The laboratory is equipped with a large number of D. C. and A. C. generators, motors, and other appliances especially adapted for experimental work. In addition the equipment of the power plant is so arranged as to be readily available for purposes of instruction and investigation.

The machines for experimental work are arranged on testing platforms rendering them readily accessible. By means of a comprehensive wiring layout with individual connection boards for each machine, a wide variety of combinations of machines can easily be made.

The main power plant supplies power for operating all shops, and laboratories, pumping water, and lighting the town of Auburn. The connected motor load is a little over 250 horse power, and about 100 killowatts are used for lighting service. This plant therefore affords unusual opportunities for students to obtain practical experience in the operation of steam and electrical machinery under commercial conditions.

III. Mechanical Engineering.—The laboratory work is considered an important part of the course and is arranged as far as possible to illustrate and supplement the work as carried on in the class room.

The steam and heat engineering laboratory is located on the first floor of Broun Hall, and the following apparatus is available for instruction: A 35-horse power cross compound engine, especially arranged for experimental work; a surface condenser with air and circulating pumps attached; a 20-horse power slide valve engine; an electric headlight engine; a 15-horse power steam turbine; steam pumps, hot and cold water meters, tanks, scales, indicators, calorimeters, thermometers, pyro-

meters, steam gauges and apparatus for testing steam gauges.

In the line of internal combustion engineering the following apparatus is available for instruction purposes: A 12-horse power four stroke cycle engine using gasoline or kerosene, a 4½-horse power four stroke cycle kerosene engine, a 2½-horse power kerosene engine, a 2-horse power two stroke cycle gasoline engine, an Ericsson hot air engine, a motor driven air compressor with motor, a volume blower, and the necessary tanks, scales, indicators and other auxiliary apparatus necessary for making tests.

A refrigerating plant of 2½ tons capacity, including ammonia condenser and cooling coils, brine circulating system, pumps, meters, weighing scales and all apparatus needed for a study of the refrigerating cycle. The plant is driven by a steam engine, and provision is made to measure the power delivered and steam consumption of the engine.

The equipment of the power house is also available for instruction, and consists of the following: A 300-horse power poppet valve engine; a 160-horse power angle compound engine; a 60-horse power simple engine; a 200-horse power water tube boiler; a 100-horse power water tube boiler, two locomotive air pumps.

Another room on the first floor of Broun Hall has been fitted up for a laboratory for testing materials. In it are installed a Riehle testing machine arranged for making transverse, compression and tension tests, and micrometer apparatus for measuring the deformation of the specimen under test, and an Olsen torsion testing machine with auxiliary apparatus. There is also provided a cement testing outfit consisting of a testing machine, sieves, briquette moulds, boiler, and other apparatus for testing the strength, setting properties, fineness, and specific gravity of cement.

On the second floor of Broun Hall is located a laboratory for testing fuels, furnace and illuminating gases, and lubricants. The present equipment consists of a Mahler bomb calorimeter and a Parr calorimeter, for determining the heating value of fuels, complete apparatus for collecting and testing flue and furnace gases, apparatus for determining viscosity, the specific gravity, flash point, the coefficient of friction, and other properties of lubricating oils. A small electric motor furnishes power for grinding samples, driving blower for air blast, stirring, and other such work.

IV. Mechanic Arts.—The instruction in shop work is used as an auxiliary in technical education and as a school of manual training in the arts that constitute the foundation of most industrial pursuits. The work performed by the students is in-

structive in character, and is intended to give the greatest amount of instruction in principle with the least repetition of operations and the smallest consumption of time. The work is executed from drawings and the instructor in charge of the class makes the lessons before the class, or gives such specific directions as may be necessary to enable the student to make them. This is supplemented by individual instruction.

All students in the freshman class take this shop work two periods a week, each period being two hours long. The sophomore class takes two periods a week. The purpose is not to teach a trade, but to train the eye, the hand, and the mind to more perfect co-operation, a training which will be of value in any pursuit in life. This training involves the principles at the foundations of all trades, of equal value to the student who wishes afterwards to learn a trade.

Three-phase electric motors are used for driving the different shops, the motors receiving current from the large alternator in the power house.

(*a*) The wood department is located in a room 90 x 50 feet, and is provided with a surface planer, a variety saw, a swing cut-off saw, a boring machine, and a grindstone. There are in addition, thirty benches for carpentry work, with the necessary tools.

(*b*) The wood turning and pattern shop is located in a commodious room 40 x 60 feet, in the second story of the new power house. It is equipped with twenty-eight wood-turning lathes, a grindstone, a band saw, a buzz planer, a pattern maker's lathe, a double circular saw, a surface planer and a drum sand-papering machine.

In each of these departments special tools for occasional use are kept in a tool room for the purpose.

In addition to the regular carpentry tools in the benches each student is supplied with a set of chisels, and plane irons, with a locker to keep them in, and is held responsible for their care and condition.

(*c*) The forge shop is equipped with twenty-four down draft forges, with anvils, hammers, sledges, and other tools necessary for blacksmith work, including a punch and shear for cutting and punching iron, and a blacksmith drill. The blast is supplied by a blower driven by an electric motor. The smoke from the forges is removed through underground passages by a 60-inch exhaust fan and discharged into the chimney.

(*d*) The foundry is equipped with a 23-inch Colliau cupola having a melting capacity of 2,000 pounds of iron per hour, the necessary molding tools for bench and floor work, benches, a core oven, ladles, molding flasks, a foundry crane, etc. A

special blower driven by an electric motor is provided to furnish air blast for the cupola. There is also a brass furnace with crucibles, crucible tongs and the appliances necessary for making brass castings.

(e) The machine shop is a room 30 x 100 feet, and is equipped with ten 14-inch, two 16-inch and one 18-inch engine lathes, one 10-inch speed lathe, a 20-inch drillpress, a 10-inch sensitive drill, a 16-inch shaper, two iron planers, one 22-inch by 5 feet and the other 26-inch by 6 feet, a back geared universal milling machine, with vertical milling attachment, a water tool grinder, a bench grinder, a universal grinding machine, a universal cutter and reamer grinder, a twist drill grinder, and two power hack saws. Four of the engine lathes have compound rests, three have taper attachments, and one is fitted with a turret and a large number of special tools and fixtures which practically convert it into a manufacturing lathe, and serve to illustrate the methods of manufacture by duplicate parts.

For chipping and filing, eighteen benches are fitted with vises and each student is supplied with hammer, chisels, files and such other tools as he may need, and a locker in which to keep them. A gasoline engine is installed in one end of the shop, and is used for driving when the steam plant is not running. The tool room is supplied with general machinist tools, such as chucks, drills, reamers, taps, dies, gauges, jigs, and special tools. A convenient room is supplied with lockers for keeping clothes and basins supplied with hot and cold water for the use of the students. The different shops are equipped with electric lamps, and current is furnished when necessary.

V. Mining Engineering, Geology, Mineralogy.—The Department of Mining and Geology occupies parts of the first and third floors in the east wing of the Engineering Building. On the third floor the department occupies four rooms and office. The four rooms are all of about the same size, occupying about 960 square feet of floor space each; (1) lecture and recitation room, (2) mineralogical laboratory, (3) geological exhibit room, (4) drafting room. The class room has a seating capacity of sixty-four. The drafting room can accommodate twenty simultaneously. Here instruction is given in mechanical drafting, the calculating and plotting of field notes and in graphical design of mine structures.

In the mineralogical laboratory there are accommodations for thirty-six. Each student is supplied with drawer, locker, and the necessary equipment for studies in crystallography, mineralogy and lithology. In the exhibit room adjoining is maintained a good type collection of minerals and lithological specimens as well as working specimens. There is also a col-

lection of fossils and casts illustrating historical geology. Other equipment of the geological department consists of wooden, transparent, and skeleton crystal models; specific gravity balances; contact and reflecting goniometers; a photographic microscope and slides for both microscope and stereopticon lanterns.

VI. Ore Dressing.—The ground floor is occupied entirely by the metallurgical laboratory. The laboratory is well equipped with ore dressing plants. The concentrating plant consists of a gyratory crusher, two sets of roll crushers, two bucket elevators, four trommels or revolving screens, two classifiers, four Hartz jigs and a seven-foot Wilfley concentrating table.

The stamp mill is of full size Nissen type, circular discharge and interior amalgamating plate. The outside amalgamating plate is full size, being ten feet long. The stamp mill and concentrating plant are fed from their respective bins by two different types of automatic feed. The ore before entering the bin is crushed to proper size by a Blake jaw crusher. The model cyanide plant illustrates the leaching department of the cyanide process and the extractor box work. It consists of one solution tank, two sand tanks, with false bottoms and filters, one gold tank, and a set of extractor box compartments of the up-flow type.

Besides the equipment already mentioned there is an automatic sampler. The cement floor in this department gives a good surface for illustrating coning and quartering in the process of hand sampling.

A twenty-horse power motor is the source of power for this laboratory. Shafting, belting and gears of various kinds transmit the power to the various machines so that a large variety of mechanism is illustrated.

VII. Mechanical Drawing and Machine Design.—The department of mechanical drawing and machine design is supplied with equipment for teaching mechanical drawing, descriptive geometry, kinematics and machine design.

A convenient cabinet is supplied with a complete set of Schroeder's descriptive geometry models for demonstrating the principles of descriptive geometry and mechanical drawing. A small reference library and a library of selected catalogues of manufacturers, which is being established for the use of students in advanced machine design, occupy a suitable case. A Beck vertical wall file, 36 x 48 inches, for filing commercial blue prints, is filled with selected blue prints furnished by prominent manufacturers, and is made use of by students in machine design.

A number of kinematic models and a large collection of engineering specialties, sectioned to show interior, which were do-

nated by the various manufacturers, occupy a sectional case, and are used in elementary work in machine design and mechanical drawing. The filing envelopes, which contain the students' drawings are kept in alphabetical arrangement in a case of drawers.

This department is equipped with an outfit for making blue prints, consisting of two sun printing frames 18 x 24 inches and 30 x 42 inches, each mounted on a car and track and suitable conveniences for washing and drying the prints.

All students in the lower classes are required to take drawing, a study of which tends to discipline the mind as well as to train the eye and hand to accuracy of observation and execution. Four large well-lighted drawing rooms which will accommodate (at one period) two hundred and fifty students, are provided with tables, lock boxes, etc. The drawing rooms have been equipped with one hundred and fifty new drawing tables of the most modern pattern.

Visual Instruction: A bureau of visual instruction is operated in connection with the work of the department of machine design and drawing. The bureau is in co-operation with the extension service of the department of agriculture of the college. It serves as a distributing center for lantern slides and motion picture films of educational objects. In addition to this, the bureau prepares slides, photographs, charts, and diagrams needed by the several departments of the college for educational illustration.

The bureau acts as curator of the college educational exhibit which is located in the engineering department in Broun Hall. The exhibit consists of a display apparatus including an autostereopticon, multiplex panels, framed photographs, and specimens of work of the technological and academic branches. The activities of the college in military and athletics are shown by means of photographs taken during the progress of these features.

VIII. Architecture.—The department of architecture is provided with four well-lighted rooms in the Main Building. The drafting room is open from 8:00 A. M. to 10:00 P. M., and each student has his own table to which he may come at any time, and a steel locker for materials; members of all classes are together in this room, and the younger men find inspiration in the work of the older ones. The studio for freehand drawing and water color painting is furnished with adjustable tables and a good collection of models and plaster casts of sculpture and architectural details.

The architectural library is conveniently located with respect to other rooms of the department, and the books, journals,

and drawings are freely accessible to students during working hours; under proper restrictions books may also be taken out for home use. The equipment of the lecture room includes a lantern and a carefully selected collection of slides. Quarters for clay modeling are fitted out in Broun Hall.

For advanced work in construction the department of architecture has at its disposal the resources of the various engineering laboratories. In the civil engineering testing laboratory the student investigates the properties of materials, such as cement, stone, brick and steel; in the mechanical laboratory he becomes acquainted with the processes involved in the heating and ventilation of buildings, and the operation of steam and gas engines; in the electrical laboratory he gains a knowledge of dynamo electric machinery, and methods of wiring and illumination of buildings.

On file in the office of the department is a growing collection of working drawings and specifications contributed by practicing architects. A practically permanent display of rendered drawings is maintained on the walls, student problems in design being hung as completed for purposes of inspection and criticism.

COLLEGE OF AGRICULTURAL SCIENCES.

IX. Practical Chemistry.—The chemical apparatus recently purchased for the chemical laboratory consists of a full supply of the most improved instruments for practical work and investigation. The building is supplied with water and gas and every appliance required to meet the demands of modern scientific instruction and research. In addition to the apparatus usually supplied to the first class laboratories, there have been imported a new and improved Schmidt and Heinsch's polariscope, ten short-arm balances of latest pattern, Bunsen's spectroscope, Abbe refractometer, and other instruments for delicate and accurate work.

The investigations that are undertaken in this laboratory by scientific experts in connection with the work of the agricultural experiment station, are of special value to advanced students, and afford them unusual opportunities to learn the methods of scientific research.

The building contains a large general laboratory that accommodates eighty students, a special laboratory for seniors that will accommodate forty students, a lecture room with a capacity of one hundred and fifty seats, and nine other rooms, all appropriated to instruction and research in chemistry.

The State chemical laboratory for the official analysis of fertilizers is connected with this department.

X. Agriculture.—The agricultural experiment station established in connection with the Institute, where experiments and scientific investigations relating to agriculture are daily made, affords unusual opportunities to students to become familiar with agriculture, its defects and remedies.

The students of agriculture accompany the professors in the field where lectures are delivered in the presence of the objects discussed, and during the year exercises in practical agriculture of an educational character are given the students who enter upon this course of study.

The farm contains 304 acres.

XI. Botany.—The department of Botany occupies the western half of the third floor of Agricultural Hall. The rooms in use include a lecture room having seats for sixty-four students, a general laboratory accommodating forty-five students, a smaller laboratory for bacteriology and pathology accommodating twenty students, two small laboratories for professors and advanced students, two offices, a dark room, and store room. The general laboratory is supplied with microscopes, glassware, and the general equipment of apparatus and materials necessary for gross and microscopic work in plant morphology. The equipment for work in plant physiology and pathology has been very materially increased by the installation of much new apparatus needed for quantitative work in these subjects. These additions include autoclaves, sterilizers, incubator, drying oven, automatic water still, constant temperature baths, and ovens, Kjeldahl nitrogen determination apparatus, distilling and extraction apparatus, and many smaller pieces. These accessions to the equipment provide facilities for accurate work, under controlled conditions, in the chemical phases of plant physiology and for cultural studies in bacteriology and plant pathology and permit expansion and development of the courses offered in these subjects to a degree commensurate with their importance.

The greenhouse of the department has a floor space 30 x 110 feet, with an adjoining laboratory room 30 x 30 feet. It is used for experimental work in plant pathology and plant physiology. The facilities provided are sufficient to permit the growth of ample material for class use in these subjects as well as for the investigations of special problems by the staff.

The botanic garden contains a fairly representative collection of the native trees and shrubs of the state, and it is planned to make a collection of native medicinal plants. A portion of the garden will also be used as an outdoor experimental plot for the growing of materials employed in the work of instruction or in research.

XII. Pharmacy.—The laboratory of this department occupies the first and second floors of the annex to the chemical laboratory, and is provided with a sufficient supply of drugs and apparatus necessary for instruction in pharmaceutical preparations. The equipment for the laboratory includes a Laurent Polariscope, a Pulfrich refractometer, a vacuum distilling and drying apparatus, consisting of ½ horse power air pump vacuum chamber, condenser, and Bruhl receiver for fractional distillation under diminished pressure, a three-horse power electric motor, a complete outfit for organic combustion work, and three chemical balances.

On the third floor is located the lecture room, storeroom, and drug mill room.

The new pharmaceutical laboratory on the basement floor of the pharmaceutical building is fitted with steam and has a full equipment for research work in pharmaceutical chemistry.

The students work in the laboratory with the professor from five to eight hours, six days in the week.

XIII. Horticulture.—A well-lighted and heated one-story brick building adjoins the greenhouse. It affords space for about 40 students at one time for practical work in grafting, seed germination, seed testing, transplanting, grading, packing, spray mixing, etc. It contains also a complete equipment for instruction in canning. The two greenhouses, 20 x 80 feet are modern in construction. They contain a varied collection of the leading bedding and decorative plants, and afford facilities for practical instruction in plant propagation, the forcing of vegetables and cut flowers, and greenhouse management. Hot beds and cold frames of cement construction are also at hand. Instructors also make use of the experimental orchards, vineyard, garden, and ornamental plantings on the grounds of the department for practical instruction. Accurate experiments in the culture of various fruits and vegetables adapated to the state are constantly in progress. The departmental library embracing many of the standard works, magazines, bulletins and other equipment are accessible to advanced students under the usual regulations.

XIV. Entomology, Zoology.—The department for teaching these subjects is located on the first floor of Comer Hall. A combined lecture and laboratory room provides accommodation for 70 men at a lecture or 25 in laboratory work. It is well equipped with apparatus for microscopic and dissection work, and to supplement this, charts, models and preserved specimens of invertebrate animals are used.

In addition the course in Entomology has at hand in the station laboratory, adjoining the class room, a valuable and

growing collection of insects especially of the economic species of Alabama. In connection with the range of greenhouses there is also a large workroom for experimental and demonstrational work with insecticides and an insectary 16 x 40 feet within which the study of insect problems may be conducted at any time under controllable conditions. This room is also used in connection with the college apiary to demonstrate equipment and apparatus as used in modern bee-keeping, a part of the course in Entomology. The farm, orchards, vineyards and truck gardens afford a convenient opportunity for the observation, study and control of such economic pests as may occur therein. The student in Entomology is made familiar with several types of hand and power spraying and dusting apparatus, also spraying accessories which are recognized as essential in successful agriculture.

A reference library, containing general and standard works upon entomology and zoology and publications of the government and State experiment stations is accessible to students.

XV. Animal Husbandry.—The Animal Husbandry Farm contains about 260 acres. Pure bred herds of Angus, Hereford, Shorthorn, and Jersey cattle, Berkshire, Duroc-Jersey, and Poland China hogs, a Percheron Stallion, Southdown sheep, and several teams of work mules are kept on this farm for experimental work, and for use in instructing the college students. The students visit the Animal Husbandry farm with their instructors for instruction in judging, feeding, and management of the various classes of live stock. During the junior and senior years the students make trips to several of the best live stock farms in the State to study the different types of animals kept on the farms and the live stock problems of the breeders. The students are also required to make trips during the senior year to live stock shows and attend some of the leading live stock sales in the State.

ACADEMIC WORK

XVI. History.—All advanced work in history is conducted by the laboratory method. This plan has been successfully employed in the junior, the senior, and the graduate classes. A large and well-lighted room has been set apart for this work in the new library building where all the resources of the rapidly growing library are easily accessible. This room is equipped with maps, diagrams, charts and suitable tables and chairs, The library is a depository for all government publications. These and other books on American history, with which it is well supplied, offer abundant material for research work in the his-

tory of our country. The publications collected by the experiment station constitute valuable material for study in industrial history.

XVII. Physics.—The physical laboratory occupies two rooms one of these being permanently darkened for experimental work in light. It is equipped with numerous standard instruments of precision, such as verniers, micrometers, cathetometers, an horizontal comparator, a Kater's revision pendulum, balances, etc., and a quantity of minor apparatus. Recently there have been added a concave grating spectograph, a large induction coil of 12-inch spark, and other apparatus of value.

XVIII. Military Tactics.—Instruction in this department is given in conformity with the Act of Congress. Students receive the benefit of regular military drill, and in addition, the military system is used as a means of enforcing discipline and securing good order, promptness and regularity in the performance of academic duties. The department is supplied with cadet rifles and full equipment for instruction in the Field Artillery, Engineers, Signal corps, and Infantry units of the Reserve Officers' Training Corps which are maintained in accordance with the National Defense Act of 1916.

COLLEGE OF VETERINARY MEDICINE

XIX. Physiology and Veterinary Science.—The veterinary department occupies a separate two-story building with nine rooms. It is provided with lecture room, office, working and operating rooms for clinical practice, thoroughly equipped laboratories for work in bacteriology, milk and meat inspection, and with museum containing skeletons of the domestic animals for instruction. Free clinics are given every Saturday for the benefit of the students in veterinary science.

There is a separate dissecting room with cement floor and north roof light, constructed especially for this department. This laboratory is used by the professor and students each afternoon for three months.

BUILDINGS.

The Main Building is 160 x 71 feet, and contains forty-five rooms. It contains lecture rooms, administration offices, physical laboratory, museum, armory, etc.

LANGDON HALL

This is a two-story building 90 x 50 feet. The second story is the audience hall, used for commencement and other public occasions.

POWER HOUSE AND SHOPS

The first story of Langdon Hall is appropriated to the laboratory of first year wood work in mechanic arts.

The machine shop, forge shop, foundry, and boilers are installed each in separate buildings. A handsome building, two stories in height, pressed brick and stone trimmings, has been constructed for occupation by the power plant on the first floor and by the pattern making department on the second floor. The dynamo laboratory occupies a separate building.

A commodious boiler house has been built. It is fire-proof construction and is supplied with track and cars for handling coal from the bin to the boiler. Scales are provided for keeping accurate account of the coal consumed.

BROUN ENGINEERING HALL.

The alterations and additions to the William LeRoy Broun Engineering Hall were completed and the building occupied in September, 1910. The finished structure is 250 feet long, 50 to 90 feet deep, and three and four stories in height, enclosing a floor area of 43,500 square feet. In construction this building conforms in general to the other buildings on the campus. The walls are laid up in selected red brick, with limestone and terra cotta trimmings.

Offices, lecture rooms, and laboratories for the departments of mechanical, electrical, mining and civil engineering, machine design and drawing, are located within this building, and all the interior accommodations are especially arranged to facilitate the special work of each department.

This building was designed and superintended by the department of architecture.

CHEMICAL LABORATORY.

The Chemical Laboratory is a two-story structure, 40 x 60 feet, with a rear projection, 35 x 60 feet, of one-story and basement, and contains eight rooms. The exterior is of pressed brick, with cut stone trimmings and extra terra cotta ornamentations.

The chemical laboratory for the agricultural experiment station occupies a building 60 x 26 feet, and is appropriated exclusively for chemical investigation and research.

PHARMACY BUILDING.

This is a three-story brick building containing rooms and laboratories for the department of pharmacy.

SMITH HALL.

The Otis D. Smith Dining Hall, constructed of stone and pressed brick, is two stories in height, and one hundred and forty feet in length. It will accommodate three hundred in the dining hall, and forty in the dormitory above. The style is semi-colonial.

CARNEGIE LIBRARY.

The library building is a handsome structure of classical outline, monumental in its general effect.

AGRICULTURAL BUILDING.

A handsome and commodious building is occupied by the departments of (1) agronomy, (2) horticulture, (3) botany, (4) entomology, and (5) animal husbandry, together with a separate set of buildings for practical work in each of these departments. It is the general opinion that there is no superior, if equal, group of buildings for agricultural purposes in the South. The building is three stories in height and is constructed of pressed brick with stone trimmings.

ALUMNI GYMNASIUM.

The central unit of the Gymnasium presented to the College by the Alumni was dedicated February 22nd, 1916. It is an attractive three-story structure, 110 x 60 feet, built of brick and stone. The first floor contains the dressing rooms and showers for the athletic teams, the students' lockers and showers being located on the second floor. The main Gymnasium hall is on the third floor.

It is planned to complete the building at an early date.

REQUIREMENTS FOR ADMISSION

APPLICATION.

All applicants for entrance to any departments of the College should make application to the Registrar as early as possible before the opening of the session (September 10, 1919). Those who desire to be admitted by certificate should make application as soon as possible after their graduation from the High School. To all applicants a blank will be furnished which they are expected to fill out and file with the Registrar in advance of entrance.

All applicants for admission must present testimonials of good moral character and those who come from other colleges must bring certificates of honorable discharge or furnish other testimonials of good moral character.

Entrance examinations will begin on Monday, September 8th. These examinations will be required of all students entering college for the first time, except those who bring certificates from accredited high schools or preparatory schools or from reputable colleges or universities.

REGISTRATION.

Students upon their arrival in Auburn should report promptly to the President.

All students are required to register on the first day of the session and on the opening day after the Christmas vacation. Registration at a later date involves additional administration work to the College and seriously affects the work of the student. An additional fee of $2.00 will be charged for registration after September 13th and January 2nd. No exception will be made to this regulation.

All students, whether applicants for regular or irregular courses, are required to report for classification to the Chairman of the Committee on Entrance Examinations who will give them cards of admission to the classes to which they are assigned.

ADMISSION TO THE FRESHMAN CLASS.

To enter the freshman class the applicant must be not less than fifteen years of age.

For unconditional admission to any bachelor's course, or to the Veterinary College, or to the two-year and three year courses in pharmacy and to the pre-medical course, a student will be required to present fourteen entrance units.

A unit is defined as a high school or preparatory course of five periods of forty to forty-five minutes each, weekly, throughout the academic year of nine months. In science courses,

two laboratory periods are counted as the equivalent of one recitation period. Credits of less than one unit may be granted for courses that do not run full time. No more than four units will be given for one year's work in the high school.

Students who wish to enter the regular courses and are deficient in entrance requirements may enter and be classified as conditioned students, provided their deficiencies do not exceed two units.

Of the fourteen units required for admission in full standing to the freshman class, seven and a half are prescribed as follows:—

Mathematics 3½ units:
- High School Arithmetic.
- Algebra, complete.
- Plane and Solid Geometry.

English 3 units:
- High School Grammar.
- Rhetoric and Composition.
- History of American or English Literature.
- Classics.

High School History of the United States 1 unit.

ENTRANCE SUBJECTS.

Credit for admission will be given for any high school subject properly taught.

Algebra	1½ units	Virgil	1 unit
Advanced Arithmetic	½ unit	Greek	1 to 2 units
Plane Geometry	1 unit	Commercial Geography	½ unit
Solid Geometry	½ unit	Agriculture	½ to 2 units
Trigonometry	½ unit	Zoology	½ to 1 unit
High School Grammar	½ unit	Biology	½ to 1 unit
Rhetoric and Composition	1½ units	Physiology	½ to 1 unit
History of American or English Literature	1 unit	Physics	½ to 1 unit
		Chemistry	½ to 2 units
		Botany	½ to 1 unit
Advanced U. S. History	1 unit	Civil Government	½ to 1 unit
Ancient History	1 unit	Shop Work	½ to 2 units
Mediaeval and Modern History	1 unit	Mechanical Drawing	½ to 2 units
English History	1 unit	Freehand Drawing	½ to 2 units
Pedagogy	½ unit	Music	½ to 3 units
Pyschology	½ unit	Bookkeeping	½ to 1 unit
French	1 to 2 units	Stenography and Typewriting	½ to 1 unit
German	1 to 2 units	Physical Geography	½ unit
Spanish	1 to 2 units	Domestic Science	½ to 2 units
Latin Grammar	1 unit		
Caesar	1 unit		
Cicero	1 unit		

SPECIAL OR IRREGULAR COURSES.

For entrance to the two-year special course in architecture no examination is required, but the applicant must be not less than twenty-one years of age and have had a satisfactory experience in the office of a practicing architect. He must show by drawings that he possesses a working knowledge of the "Orders" and satisfy the department that his preparation in other lines has been adequate to enable him to carry the work with success.

For entrance to any special or irregular course, not specified above, the applicant must have one of the following three requirements:

1. He must be 21 years old, or
2. He must have 14 units, of which 2 may be conditioned, or
3. He must have been out of school during the previous year engaged in some practical line of work akin to the course desired, or serving in the army.

He must also in every case satisfy the college that he is *prepared to do the work outlined in the course.*

Students are urged to take the regular four-year courses whenever it is possible, and to remain in the high school until prepared for them.

Special or irregular courses are intended for mature students who, because of special circumstances, are not able to take the regular college work. These courses are *not short cuts* to the longer ones, and work done in them does not count toward entrance units for courses that require 14 units for admission.

ADMISSION BY CERTIFICATE.

Students presenting official statements from the schools listed below will be given entrance credit for all work completed. Those having 14 units will be admitted to full standing in the freshman class. Those having 12 units will be classed as conditioned freshmen, and the remaining 2 units must be removed by the beginning of the junior year. Not more than four units will be given for any one year's school work.

All students are strongly advised to complete the full course given in their schools before applying for admission to college.

CERTIFICATE SCHOOLS

1. State Normal Schools.
2. District Agricultural Schools and County High Schools.
3. The following city, denominational and private schools in Alabama:

Alexander City High School, Alexander City---J. M. Pearson
Andalusia High School, Andalusia---L. E. Brown
Anniston High School, Anniston---D. R. Murphey
Green University School, Athens---W. K. Green
Bay Minette High School, Bay Minette---T. J. Hale
Bessemer High School, Bessemer---L. L. Vann
Central High School, Birmingham---C. A. Brown
High School, Boaz---S. J. Chandler
Snead Seminary, Boaz---L. F. Corley
Brewton High School, Brewton---W. T. Powers
Downing Institute, Brewton---J. M. Shofner
High School, Camp Hill---B. H. Wyatt
Industrial Institute, Camp Hill---L. Ward
High School, Carbon Hill---C. R. Weldon
Carollton High School, Carollton---J. R. Ward
High School, Citronelle---J. W. C. Brown
High School, Collinsville---V. E. Cates
High School, Cuba---Ida Stallworth
Decatur High School, Decatur---J. F. Collins
Demopolis High School, Demopolis---Mrs. J. B.Taylor
Dothan High School, Dothan---P. W. Hodges
High School, Elba---E. C. Palmer
Eufaula High School, Eufaula---H. L. Upshaw
Eutaw High School, Eutaw---A. F. Jackson
High School, Florence---F. T. Appleby
Gadsden High School, Gadsden---W. C. Griggs
Geneva High School, Geneva---W. S. McLeod
Georgiana High School, Georgiana---B. H. Lewis
High School, Girard---W. C. Hughes
High School, Gordo---Rowe Watson
Greenville High School, Greenville---C. B. Gamble
Haleyville High School, Haleyville---L. L. James
Huntsville High School, Huntsville---R. C. Johnston
LaFayette High School, LaFayette---E. G. McGehee
High School, Lanette---W. L. Leatherwood
High School, Leeds---W. L. Davis
High School, Livingston---Celia Tompkins
High School, Madison---Tate Hayden
Mobile High School, Mobile---S. S. Murphy
University Military School, Mobile---J. T. Wright
McGill Institute, Mobile---Wm. A. Kerrigan

Sidney Lanier High School, Montgomery.....W. R. Harrison
Barnes' School, Montgomery.....E. R. Barnes
Edgar's School for Boys, Montgomery.....R. B. Edgar
University School, Montgomery.....J. M. Starke
Baptist Collegiate Institute, Newton.....J. J. Yarbrough
High School, Opelika.....S. O. White
Opp High School, Opp.....J. E. Cheatham
High School, Ozark.....E. J. Laney
High School, Pell City.....J. W. Baird
High School, Piedmont.....L. Leftwich
High School, Pine Apple.....C. H. Newsom
Roanoke High School, Roanoke.....B. B. Baker
High School, Samson.....J. A. Lowery
High School, Selma.....A. F. Harman
High School, Sheffield.....L. E. Creel
Slocomb High School, Slocomb.....R. F. Ray
Talladega High School, Talladega.....D. A. McNeill
Thomasville High School, Thomasville.....L. C. Kersh
Thorsby Institute, Thorsby.....S. H. Herbert
High School, Troy.....Jno. R. McLure
High School, Tuscaloosa.....J. H. Foster
Tuscumbia High School, Tuscumbia.....R. E. Thompson
Tuskegee High School, Tuskegee.....V. Bradley
Union Springs High School, Union Springs.....E. S. Pugh
High School, Uniontown.....J. H. Riddle

4. Schools in other States which are accredited to institutions of equal rank with the Alabama Polytechnic Institute.

ADVANCED STANDING.

Advanced standing in any subject is not given on preparatory school credits, and can be obtained only by an examination conducted by the professor of that subject.

Advanced standing is given for work done in other colleges of similar rank, and for work done by graduates of the State Normal Schools at Florence, Jacksonville, Livingston and Troy, of Marion Institute, St. Bernard College and of Spring Hill College.

COURSES FOR WOMEN.

With the entry of women into new professions and vocations under modern social conditions, it has seemed an obligation upon the College to make provision for women in the various professional and technical courses, as well as in the academic course of the College, and to make special provision for housing women students.

NEW PROFESSIONS AND OCCUPATIONS FOR WOMEN.

High School Teaching.—Under conditions brought about by the war, women are being called in larger and larger numbers into teaching positions in high schools. Under modern industrial conditions the high school courses of study have undergone marked changes. The old type academic college no longer furnishes adequate training for all high school teachers. It was in large measure due to the recognition of this latter fact that the department of education of this Institute was established. In consideration of the facilities for offering training for teachers through the school of education and in view of the fact that women must in larger measure be relied upon to give high school instruction, it has seemed appropriate to call the attention of suitable women in the State to the facilities offered in the school of education, and in the various colleges of the Institute.

Architecture and Pharmacy.—Architecture and pharmacy have proven attractive professions for women. The work of these two professions is admirably adapted to the pursuit of women. The attention of young women of suitable age and preparation is called to the courses of study in the departments of architecture and pharmacy in the Institute.

Agriculture.—Agriculture is beginning to draw the attention of women. Many women desire to master those principles and processes which will enable them to direct the various activities of their home farm. Others have a more limited interest and wish only to prepare themselves for prosecuting some single phase of farm life, such as poultry, dairying, bee culture, or horticulture. Women who are interested in these fields are advised to consider the courses offered in the college of agricultural sciences.

ELECTIVES FOR WOMEN.

The Institute has no department of home economics, but recognizes the value of training in home economics. Women students, therefore, who have had home economics training of college grade in other institutions, may offer credits in the same in lieu of courses prescribed in the various courses of study in this institution. Such substitutions, however, shall be upon the approval of the Dean.

Other electives may be arranged with the approval of the appropriate Dean, provided such electives are consonant with a definite purpose in training.

HOME FOR WOMEN STUDENTS.

For women students room and board will be arranged under the best home conditions. The culture and refinement so

essential to the proper environments of young women will receive especial attention in selecting a home for them.

NUMBER OF EXERCISES REQUIRED.

All students are required to have *not less than fifteen* recitations per week, or the equivalent, in addition to the exercises in laboratory work, drawing and military drill. These additional exercises occupy not less than twelve hours per week, and in all, give twenty-seven to thirty hours per week required in college exercises.

Students shall not be permitted to take more than *five hours* of extra work without special permission of the faculty.

SPECIAL AND IRREGULAR STUDENTS.

Mature students who are not able to meet the regular entrance requirements may be admitted to special courses in agriculture, architecture, engineering, chemistry, pharmacy, etc., and will be classified as special or irregular students, provided they are prepared to do satisfactory work in the subjects which they desire to take.

The privilege of taking irregular courses will be granted only to those students who are of age or to those whom for special reason the faculty may grant permission. Students who are not of age will not be permitted to enter a special or irregular course without the written permission of parent or guardian.

A student to whom this privilege has been granted will be assigned to some member of the faculty who will act as his adviser in regard to his work. The professor in charge of a department will decide whether a special student is prepared for admission to his class.

Those students who are candidates for degree, but who are not in full standing in all the prescribed studies of a class, rank in the military department with that class in which they have the greatest number of studies.

CHANGES IN COURSE.

Special and irregular students may be transferred to any regular course by presenting satisfactory entrance requirements and by standing satisfactory examinations on all the work which they have not taken in that regular course.

Students who change from one regular course to another will be required to make up satisfactorily to the heads of the departments concerned all the work in the new course that they have not had.

Permission to change from one course to another will not

be granted within two weeks of any term or mid-term examination.

ADMISSION FROM OTHER COLLEGES.

Students coming from another college of similar rank will be assigned to the class to which they would belong in the institution which they have left, and will be required to make up only such back work in the course to which they are assigned as is necessary in order to carry on the regular studies of their class.

COURSES OF INSTRUCTION.

The courses of study include the physical, chemical and natural sciences, with their applications; agronomy, botany, animal husbandry, horticulture, mechanics, astronomy, mathematics, drawing, civil, electrical, mechanical and mining engineering; architecture; physiology, and veterinary science; pharmacy; English, French, German, Spanish and Latin languages; history, political economy; mental and moral sciences; education.

The studies are arranged in regular courses so as to offer liberal and practical education as a preparation for the active pursuits of life.

There are thirteen degree courses for undergraduates, leading to the degree of Bachelor of Science (B. S.) and one leading to the degree of Doctor of Veterinary Medicine (D. V. M.) each requiring four years for its completion:

I. COURSE IN CIVIL ENGINEERING.
II. COURSE IN ELECTRICAL ENGINEERING.
III. COURSE IN MECHANICAL ENGINEERING.
IV. COURSE IN MINING ENGINEERING.
V. COURSE IN ARCHITECTURE.
VI. COURSE IN ARCHITECTURAL ENGINEERING.
VII. COURSE IN CHEMISTRY AND METALLURGY.
VIII. COURSE IN AGRICULTURE.
IX. COURSE IN AGRICULTURAL EDUCATION.
X. COURSE IN PHARMACY.
XI. COURSE IN CHEMICAL ENGINEERING.
XII. GENERAL COURSE.
XIII. FOUR-YEAR COURSE IN VETERINARY MEDICINE (D. V. M.)

SHORTER COURSES.

XIV. THREE-YEAR COURSE IN PHARMACY (Ph. C.)
XV. TWO-YEAR COURSE IN PHARMACY (Ph. G.)
XVI. TWO-YEAR PRE-MEDICAL COURSE.
XVII. TWO-YEAR COURSE IN AGRICULTURE.
XVIII. TWO-YEAR COURSE IN APPLIED ELECTRICITY.

XIX. One-Year Course in Wireless Telegraphy.
XX. Two-Year Course in Mining.
XXI. Two-Year Course in Architecture.
XXII. Two-Year Course in Auto Mechanics.

Special Course in Agriculture.—Young men over twenty-one years of age who desire to study agriculture will be permitted without examination to enter classes in agriculture, and will be excused from reciting in any other class, from military duty, and from all other college duties; but will be under the general college regulations, and will be required to have their time fully occupied. They may attend the lectures in agriculture in all the classes and engage in the practical work at the experiments station, in the field, stock-yard, dairy, garden, orchard, vineyard, etc., and may thus in one year acquire valuable practical knowledge of scientific agriculture.

Course I. includes the principles and applications of the sciences that directly relate to civil engineering, and is adapted to those who expect to enter that profession.

Course II. includes, besides the general principles and application of the sciences, a special course in the applications of electricity and mechanics, and is arranged to fit men for the profession of electrical engineering.

Course III. furnishes instructions in steam engineering, materials of construction, drawing and machine design, electrical engineering, together with laboratory work. The course is intended to qualify men to fill positions in the manufacturing industries.

Course IV. includes theoretical and practical instruction in geology, mineralogy, chemistry, civil and electrical engineering, as applied to mines, mapping, exploration, boring, ventilation, timbering, and all the operations pertaining to the profession of mining engineering.

Course V. and VI. have been arranged to give theoretical and practical knowledge of architecture in order to enable students to take advantages of office opportunities upon graduation. It embraces architectural drawing and design, history, and ornamental architectural engineering, and office practice.

Course VII. provides for thorough theoretical and practical instruction in pure and technical chemistry and metallurgy, and in scientific branches relating thereto. Students taking this course also pursue the study of German or French during the junior and senior years, and are thus prepared to utilize for reference and for study, scientific journals and works published in those languages.

Course VIII. includes theoretical and practical instruction in those branches that relate to agronomy, horticulture, animal

husbandry, botany and entomology, and is especially adapted to those who intend to devote themselves to agricultural and horticultural pursuits.

Course IX. has been established to meet the need for an increasing number of trained agricultural teachers, principals, supervisors, and superintendents for the schools of Alabama.

Course X. includes, besides the general education of Course XII. of the lower classes, a special course in pharmacy and chemistry, and adapted to those who expect to become pharmacists, manufacturing chemists, or to enter upon the study of medicine.

Course XI. has been arranged for students who desire preparation for chemical engineering work with special reference to planning, construction and operation of plants employed in the chemical industries, such as manufacture of fertilizers, sugars, ceramics, oils and fats, and their products, coal by-products, etc., etc.

Course XII. has been arranged to give a general and less technical education in subjects of science and language to meet the wants of those students who have selected no definite vocation in life, as well as those who intend ultimately to engage in teaching or in some commercial or professional business.

Course XIII. has been established to meet the demand of the young men of the South who desire to become educated veterinarians, and for students who desire to prepare for the study of human medicine.

The shorter courses have been arranged for the benefit of those students who, for reasons satisfactory to themselves, are unable to continue at college four years, and to take one of the regular degree courses.

DEGREES.

Each applicant for a degree must submit his application and course of study by the first of October in his senior year, but no application will be accepted from a student who is still conditioned on entrance units.

No degree will be conferred upon a candidate *in absentia* unless he is officially excused for providential reasons.

The degree of Bachelor of Science will be granted to those students who satisfactorily complete one of the prescribed courses.

A student who completes the work of the four-year course in veterinary medicine and submits a satisfactory thesis, will be granted the degree of Doctor of Veterinary Medicine (D. V. M.).

A student who completes the work of the two-year course in

Pharmacy and submits a satisfactory thesis will be granted the degree of Graduate in Pharmacy (Ph. G.)

A student who completes the work of the three-year course in pharmacy and submits a satisfactory thesis, will be granted the degree of Pharmaceutical Chemist (Ph. C.)

A candidate for a degree must, before May fifteenth of his senior year, show such ability to write clear and correct English as to satisfy the committee on students' use of English. To promote the habitual use of clear and correct English, the written work of every student in all his courses (theses, reports, quizzes, examination papers, etc.) is subject to inspection by the committee. It is the duty of each member of the teaching staff to require that his students shall be careful in their use of English, to give due weight in the making up of grades to the students' use of English, and to report promptly to the committee, submitting the evidence, any student whose use of English is seriously defective. Each session the committee will pass on the written work of every student above the rank of freshman. If any student be found deficient, the committee will prescribe for him such work as in its judgment is proper, and this work must be done to the satisfaction of the committee before the student can obtain his degree.

CERTIFICATES.

A student who completes satisfactorily all the work of the senior class in a department, including the laboratory work, with approval of the faculty, may be awarded a certificate of proficiency in that subject.

Students who complete one of the two-year courses will, on passing a satisfactory examination, receive certificates indicating their attainments.

No certificate of proficiency will be given in any course unless the applicant has passed a satisfactory examination in elementary English. Every applicant for a certificate will be required to stand this special examination during the final year.

GRADUATE COURSES.

A more extended course of study may be taken by a graduate of this institution or of any college of equal grade. The completion of a course which leads to a post-graduate degree of Master of Science requires one year's residence, spent in the satisfactory prosecution of a course of study, with such laboratory work as may be approved by the faculty.

The candidate must also present to the faculty a satisfactory thesis showing independent investigation upon some subject pertaining to his course, and must pass an examination at the

close of each term, on the course of study prescribed, in which he must attain a grade of 75 per cent. The examination is written, and also oral in the presence of the faculty.

The subject for the thesis must be submitted to the faculty for approval prior to January first, and the thesis given to the professor by May first.

Applications for a post-graduate degree and special students in post-senior studies are subject to the same general regulations as other students, and *pay the same fees,* but are exempt from all military duty.

The following courses are prescribed for the degrees named:

1. *Master of science.*—Studies in three departments, in two of which the candidate must have previously completed the full course of the senior class; or in special cases, with the approval of the faculty, a student may devote his full time to work in two departments, in each of which he has completed the full senior course.

2. *Master of Science in Pharmacy.*—Pharmacy and Chemistry.

PROFESSIONAL DEGREES IN ENGINEERING.

1. *Degrees in Course.*—The professional degree of Civil Engineer, Electrical Engineer, Mechanical Engineer, Chemical Engineer, or Engineer of Mines, will be conferred upon graduate students upon the satisfactory completion of the course of study prescribed, a residence of one year at the institute being required for the completion of those courses.

A written application stating the degree desired and the course of study selected must be submitted to the faculty at the beginning of the session. A satisfactory thesis must be submitted by May first.

The following courses of study are prescribed for the degrees named:

Civil Engineer.—Civil Engineering and any two subjects selected from the following: Mathematics, analytical mechanics, mechanical engineering, electrical engineering, mining engineering, bacteriology.

Electrical Engineer.—Electrical Engineering and mechanical engineering, or electrical engineering, mathematics and civil engineering.

Mechanical Engineer.—Mechanical engineering and machine design, or mechanical engineering, mathematics and mining engineering.

Chemical Engineer.—Electro-chemistry and advanced analytical or organic chemistry, together with one or more subjects selected from the following: Mechanical engineering, machine design, electrical engineering, mining engineering.

Engineer of Mines.—Graduate students who have completed the course in mining engineering may apply for this degree. The subjects to be pursued are mining engineering, civil engineering and one other technical subject relating to mining and metallurgy, and approved by the faculty.

II. Degrees for Professional Work.—The above named professional degrees may be conferred upon graduates of the Alabama Polytechnic Institute in civil, electrical, mechanical, chemical and mining engineering, upon complying with the following requirements:

1. The candidate must have spent at least four full years in the practice of that branch of engineering in which he graduated.
2. An approved thesis must be submitted to the faculty not later than May 1st of the year in which the degree is sought.
3. The student must show that he has filled satisfactorily a responsible position in charge of important engineering work. Written testimonials from employers or clients will be accepted as evidence of satisfactory service.
4. A written application, stating the degree desired, and giving a report or outline of the professional work upon which the application is based, must be submitted not later than January 1st of the year in which the degree is to be granted.

III. Special Students in Graduate Studies.—Students who are not graduates, but are qualified in special subjects to prosecute graduate studies, and desire to prepare themselves more thoroughly for professional or special work in any of the departments of engineering, chemistry, pharmacy, veterinary science, or other subjects in which instruction is given, may, when qualified, with approval of the faculty, enter this higher department of study and have all the privileges of post-graduate students.

A certificate of proficiency will be given when any one subject of a post-graduate course is satisfactorily completed.

Two degrees will not be given in the same year.

LABORATORIES.

Laboratory instruction constitutes an important feature in the course of education provided for the students and as far as possible all students are required to enter upon laboratory work in some one department.

Laboratory instruction and practical work are given in the following departments:

I. CIVIL ENGINEERING, FIELD WORK, SURVEYING, ETC.
II. ELECTRICAL ENGINEERING, TELEPHONE ENGINEERING.
III. MECHANICAL ENGINEERING.

IV. MECHANIC ARTS.
V. MINING ENGINEERING, MINERALOGY.
VI. ORE DRESSING.
VII. ARCHITECTURE, ARCHITECTURAL ENGINEERING.
VIII. TECHNICAL DRAWING, MACHINE DESIGN.
IX. CHEMISTRY, METALLURGY.
X. AGRONOMY.
XI. BOTANY.
XII. PHARMACY, PHARMACEUTICAL CHEMISTRY.
XIII. HORTICULTURE.
XIV. ENTOMOLOGY, ZOOLOGY.
XV. ANIMAL HUSBANDRY.
XVI. HISTORY, LATIN.
XVII. PHYSICS.
XVIII. MILITARY TACTICS.
XIX. VETERINARY SCIENCE, BACTERIOLOGY, PHYSIOLOGY.
XX. WIRELESS TELEGRAPHY.
XXI. AUTO MECHANICS.

NOTE:—Special work in Latin or History may be taken by students in the general course as a substitute for laboratory work.

COURSES OF INSTRUCTION

The numbers in the Courses of Instruction refer to the subjects as described under "Description of Courses." The following abbreviations are used: Ac., Academic Departments; Eng., College of Engineering and Mines; Agr., College of Agricultural Sciences; Ed., Department of Agricultural Education; Vet., College of Veterinary Medicine and Surgery. The numbers in columns indicate the hours per week.

English, German, French, Latin or Spanish may be taken as language in junior and senior classes, provided there is no conflict in schedule. Approved courses in Education may be substituted for language in junior and senior classes in all courses.

A student, who, on surgeon's certificate, is excused from any subject will be required to substitute other work approved by the faculty.

GENERAL COURSE

Freshman Class.

First Term.

English (Ac. 102)	3
History (Ac. 201)	2
Latin (Ac. 209) or Spanish or Science	3
Mathematics (Ac. 401)	5
Chemistry (Agr. 101)	3
Drawing (Eng. 601)	4
Mechanic Arts (Eng. 351)	4
Physical Training (Ac. 600a)	2
Military (Ac. 600)	3

Second Term.

English (Ac. 102)	3
History (Ac. 201)	2
Latin (Ac. 209) or Spanish or Science	3
Mathematics (Ac. 402)	4
Chemistry (Agr. 101)	3
Drawing (Eng. 601)	4
Mechanic Arts (Eng. 352)	4
Physical Training (Ac. 600a)	2
Military (Ac. 600)	3

Third Term.

English (Ac. 102)	3
History (Ac. 201)	2
Latin (Ac. 209) or Spanish or Science	3
Mathematics (Ac. 402)	4
Chemistry Agr. 101)	3
Drawing (Eng. 601)	4
Mechanic Arts (Eng. 353)	4
Physical Training (Ac. 600a)	2
Military (Ac. 600)	3

Sophomore Class.

First Term.

Latin (Ac. 210) or Spanish or Science	3
English (Ac. 103a)	3
History (Ac. 202)	2
Physics (Ac. 504)	3
*Mathematics (Ac. 403)	5
Botany (Agr. 301) or other Science	6
Chemical Lab'y (Agr. 110a) or other Lab'y	6
Physical Training (Ac. 600a)	2
Military (Ac. 600)	3

Second Term.

Latin (Ac. 210) or Spanish or Science	3
English (Ac. 103c)	3
History (Ac. 202)	2
Physics (Ac. 504)	3
*Mathematics (Ac. 403)	5
Botany (Agr. 301) or other Science	6
Chemical Lab'y (Agr. 110a) or other Lab'y	6
Physical Training (Ac. 600a)	2
Military (Ac. 600)	3

Third Term.

Latin (Ac. 210) or Spanish or Science	3
English (Ac. 103c)	3
History (Ac. 204)	2
Physics (Ac. 504)	3
*Mathematics (Ac. 404)	5
Botany (Agr. 301) or other Science	6
Chemical Lab'y (Agr. 110a) or other Lab'y	6
Physical Training (Ac. 600a)	2
Military (Ac. 600)	3

*With approval of faculty other work may be substituted.

JUNIOR CLASS.

First Term.

English (Ac. 107) (a) 3
Latin (Ac. 211) (a) or Civics ..3
French (Ac. 301a) (a) or Spanish 4
German (Ac. 305a) (a) 4
Education 3
Chemistry or other Science ...3
History Lab'y (b) (Ac. 206) ..6
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

English Ac. 107) (a) 3
Latin (Ac. 211) (a) or Civics ..3
French (Ac. 301b) (a) or Spanish 3
German (Ac. 305b) (a) 3
Education 3
Chemistry or other Science ...3
History Lab'y (b) (Ac. 206) ...6
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

English (Ac. 107) (a) 3
Latin (Ac. 211) (a) or Civics..3
French (Ac. 301c) (a) or Spanish 4
German (Ac. 305c) (a) 4
Education 3
Chemistry or other Science ...3
History Lab'y (b) (Ac. 206) ..6
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

(a) Approved course in Education may be substituted for one language.

(b) The student may substitute laboratory of any department of natural science for which he may be qualified.

SENIOR CLASS.

First Term.

English (Ac. 109) (a) 2
Education 3
Latin (a) (Ac. 212) or Cons. History (Ac. 205) 3
French (Ac. 302a) or Spanish (Ac. 310) (a) 4
German (Ac. 306a) (a) 4
Geology (Eng. 441) (a) 2
History Lab'y (b) (Ac. 206) ..6
Military Science (Ac. 603) 1

Second Term.

Economics (Ac. 2) (a) 2
Education 3
Latin (a) (Ac. 212) or Cons. History (Ac. 205) 3
French (Ac. 302b) or Spanish (Ac. 306b) 3
German (Ac. 306b) (a) 3
Geology (Eng. 441) (a) 2
History (b) (Ac. 206) 6
Military Science (Ac. 604 1

Third Term.

Economics (Ac. 202) (a) 2
Education 3
Latin (a) (Ac. 212) or Cons. History (Ac. 205) 3
French (Ac. 302c) or Spanish (Ac. 310) (a) 4
German (Ac. 306) (a) 4
Geology (Eng. 441) (a) 2
History Lab'y (b) (Ac. 206) ..6
Military Science (Ac. 605) 1

(a) Education may be substituted for one language or for Geology.

(b) The student may substitute laboratory of any department of natural science for which he may be qualified.

COLLEGE OF ENGINEERING, MINES AND ARCHITECTURE.

The following studies in the freshman class are prescribed in the courses in civil, electrical, mechanical, mining and chemical engineering, and chemistry and metallurgy.

FRESHMAN CLASS.

First Term.

English (Ac. 102) ----------3
History (Ac. 201) ----------2
Mathematics (Ac. 401) -------5
Chemistry (Agr. 101) --------3
Engines and Boilers (Eng. 323) 3
Drawing (Eng. 601) ---------4
Mechanic Arts (Eng. 351) ----4
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----------3

Second Term.

English (Ac. 102) ----------3
History (Ac. 201) ----------2
Mathematics (Ac. 402) -------4
Surveying (Eng. 102) --------5
Chemistry (Agr. 101) --------3
Drawing (Eng. 601) ---------4
Mechanic Arts (Eng. 352) ----4
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----------3

Third Term.

English (Ac. 102) ----------3
History (Ac. 201) ----------2
Mathematics (Ac. 402) -------4
Surveying (Eng. 102) --------5
Chemistry (Agr. 101) --------3
Drawing (Eng. 601) ---------4
Mechanic Arts (Eng. 353) ----4
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----------3

CIVIL ENGINEERING.

Surveying (Eng. 105):
Forty-eight hours per week for four weeks immediately after commencement in summer camp.

SOPHOMORE CLASS.

First Term.

English (Ac. 103a) ----------3
History (Ac. 202) ----------2
Mathematics (Ac. 403) -------5
Physics (Ac. 504) ----------3
Physical Laboratory (Ac. 502) 2
Descriptive Geometry (Eng. 602) ----------4
R. R. Surveying (Eng. 104) ---4
Physical Training (Ac. 600a) -2
Military (Ac. 600) ----------3

Second Term.

English (Ac. 103c) ----------3
History (Ac. 202) ----------2
Mathematics (Ac. 403) -------5
Physics (Ac. 504) ----------3
Physical Laboratory (Ac. 502) 2
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) ----------4
R. R. Surveying (Eng. 106) ---4
Physical Training (Ac. 600a) -2
Military (Ac. 600) ----------3

Third Term.

English (Ac. 103a) ----------3
Mathematics (Ac. 404) -------5
Applied Mechanics (Eng. 312) 3
Physics (Ac. 504) ----------3
Physical Laboratory (Ac. 502) 2
Descriptive Geometry (Eng. 602) ----------4
Higher Surveying (Eng. 103) -4
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----------3
Surveying (Eng. 110):
Forty-eight hours per week for four weeks immediately after commencement in summer camp.

JUNIOR CLASS.

First Term.

English (Ac. 107) ----------3
Mathematics (Ac. 405) -------3
Advanced Surveying (Eng. 121) 2
Strength of Materials (Eng. 322) 3
Graphic Statics (Eng. 123) ----3
Roads and Pavements (Eng. 122) ----------3
Engines and Boilers (Eng. 323) 3
or Electricity and Magnetism (Eng. 204) ----------
or Mineralogy (Eng. 431) ------
Geology (Eng. 441) ----------2
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----------3

Second Term.

English (Ac. 107) ----------3
Mathematics (Ac. 405) -------3
Hydraulics (Eng. 124) -------3
Advanced Graphic Statics (Eng. 123) ----------3
Highway Engineering (Eng. 122) ----------3

Geology (Eng. 441) ----------2
Gas Engines (Eng. 324) ------3
or Electricity and Magnetism (Eng. 204) ----------
or Mineralogy (Eng. 431) ------
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

Third Term.

English (Ac. 107) ----------3
Mathematics (Ac. 405) -------3
Structural Details (Eng. 126) -3
Highway Engineering (Eng. 122) ----------3
Railway Engineering (Eng. 127) ----------
or Bacteriology (Vet. 118) ----3
Dynamo Electric Machinery (Eng. 204a) or Mineralogy (Eng. 431) ----------2
Geology (Eng. 441) or Highway Engineering Laboratory (Eng. 128) ---2
Field Astronomy and Geodesy (Eng. 125) ----------
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

SENIOR CLASS.

First Term.

English (Ac. 108) ----------2
Physics (Ac. 505) ----------2
Theory of Structures (Eng. 144) ----------3
Water Supply and Purification (Eng. 141) ----------3
Heating and Ventilation (Eng. (Eng. 334) ----------2
Technical Writing (Eng. 612)--2
Seminar ----------1
Building Construction (Eng. 155) or Masonry Construction (Eng. 150) -----3
Military Science (Ac. 600) ----1

Second Term.

Economics (Ac. 2) ----------2
Physics (Ac. 505) ----------2
Adv. Stress Analysis (Eng. 145) 3
Adv. Structural Steel Design (Eng. 148) ----------2
Reinforced Concrete Design (Eng. 151) ----------3
Water Works Design and Power Plant Development (Eng. 142) ----------2
Eng. Law and Valuation(Eng. 154) ----------2
Thesis ----------2
Seminar ----------1
Mech. Eng. Lab'y (Eng. 302) --2
Military Science (Ac. 600) ----1

Third Term.

Economics (Ac. 2) ----------2
Astronomy (Ac. 506) --------2
Indeterminate Structures (Eng. 149) ----------3
Structural Engineering (Eng. 146) ----------3
Adv. Reinforced Concrete Design (Eng. 152) ---------3
S werage (Eng. 143) ---------3
Contracts and Specifications (Eng. 613) ----------2
Thesis ----------2
Seminar ----------1
Military Science (Ac. 600) ----1

ELECTRICAL ENGINEERING.

SOPHOMORE CLASS.

First Term.

English (Ac. 103a) ----------3
History (Ac. 202) ----------2
Mathematics (Ac. 403) -------5
Descriptive Geometry (Eng. 602) ----------4
Physics (Ac. 504) ----------3
Shop Work (Eng. 361) -------4
Physical Laboratory (Ac. 502) 2
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

Second Term.

English (Ac. 103c) ----------3
History (Ac. 202) ----------2
Applied Mechanics (Eng. 312) 3
Mathematics (Ac. 403) -------5
Descriptive Geometry (Eng. 602) ----------4
Physics (Ac. 504) ----------3
Shop Work (Eng. 362) --------4
Physical Laboratory (Ac. 502) ----------2
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

Third Term.

English (Ac. 103c) ----------3
Mathematics (Ac. 404) -------5
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) ----------4
Physics (Ac. 504) ----------3
Shop Work (Eng. 362) -------5
Physical Laboratory (Ac. 502) ----------2
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

JUNIOR CLASS.

First Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Electrical Eng. (Eng. 201) 3
Electrical Meas. (Eng. 205) ...1
Strength of Materials (Eng. 322) 3
Graphic Statics (Eng. 607) ...2
Machine Design (Eng. 608) ...3
Practical Mechanics (Eng. 321) 1
Electrical Lab'y. (Eng. 206) ..4
Shop Work (Eng. 371) 6
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Electrical Eng. (Eng. 202) 3
Electrical Meas. (Eng. 205) ...1
Kinematics (Eng. 606) 3
Machine Design (Eng. 608) ...4
Practical Mechanics (Eng. 321) 1
Electrical Lab'y. (Eng. 207) ..4
Shop Work (Eng. 371) 6
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Electrical Eng. (Eng. 203) ...3
Electrical Tests (Eng. 205) ...1
Kinematics (Eng. 606) 3
Machine Design (Eng. 608) ...5
Practical Mechanics (Eng. 321) 1
Electrical Lab'y. (Eng. 208) ...4
Shop Work (Eng. 371) 6
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

SENIOR CLASS.

First Term.

English (Ac. 108) 2
Physics (Ac. 505) 2
Electrical Eng. (Eng. 210) 3
Electrical Lab'y. (Eng. 213) ...4
Electrical Desig'ng (Eng. 211) 2
Telephone Eng. (Eng. 215) 2
Telephone Lab'y (Eng. 216) ..2
Thermodynamics (Eng. 331) ..5
Mech. Eng. Lab'y (Eng. 381) ..4
Machine Design (Eng. 609) 1
Machine Design (Eng. 611) ...3
Technical Writing (Eng. 612) ..3
Physical Training (Ac. 600a) ..2
Military Science (Ac. 600) 1

Second Term.

Economics (Ac. 2) 2
Electrical Designing (Eng. 211) 2
Electrical Eng. (Eng. 211) 3
Electrical Lab'y (Eng. 213) ...4
Physics (Ac. 505) 2
Telephone Eng. (Eng. 215) ...2
Telephone Lab'y (Eng. 216) ..2
Street Railways (a) (Eng. 214) 2
Power Plant Eng. (Eng. 332) ..5
Mech. Eng. Lab. (Eng. 382) ...4
Machine Design (Eng. 609) ...2
Machine Design (Eng. 611) ...3
Military Science (Ac. 600) 1

Third Term.

Economics (Ac. 2) 2
Astronomy (Ac. 506) 2
Electrical Eng. (Eng. 212) 5
Electrical Eng. Lab. (Eng. 213) 4
Street Railways (Eng. 214) ...2
Specifications and Contracts (Eng. 613) 2
Power Plant Eng. (Eng. 332) ..5
Mech. Eng. Lab. (Eng. 383) ...4
Machine Design (Eng. 609) ...2
Machine Design (Eng. 611) ...3
Military Science (Ac. 600) ...1

(a) Course Eng. 333 may be substituted.

MECHANICAL ENGINEERING.

SOPHOMORE CLASS.

First Term.

English (Ac. 103a) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Shop Work (Eng. 361) 4
Physical Laboratory (Ac. 502) 2
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

English (Ac. 103c) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Shop Work (Eng. 362) 4

Physical Laboratory (Ac. 502) 2
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Third Term.

English (Ac. 103c) 3
Mathematics (Ac. 404) 5
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Shop Work (Eng. 362) 5
Physical Laboratory (Ac. 502) 2
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

JUNIOR CLASS.

First Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Strength of Materials (Eng. 322) 3
Graphic Statics (Eng. 607) 2
Machine Design (Eng. 608) ...3
Electrical Eng. (Eng. 201) 3
Electrical Meas. (Eng. 205) ...1
Elec. Eng. Lab'y (Eng. 206) ..4
Practical Mechanics (Eng. 321)1
Shop Work (Eng. 371) 6
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Kinematics (Eng. 606) 3
Machine Design (Eng. 608) ..5
Electrical Eng. (Eng. 202) 3
Electrical Meas. (Eng. 205) ...1
Elec. Eng. Lab'y (Eng. 207) ..4
Practical Mechanics (Eng. 321)1
Shop Work (Eng. 371) 6
Physical Training (Ac. 600a) .2
Military (Ac. 600) 3

Third Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Kinematics (Eng. 606) 3
Machine Design (Eng. 608) ...5
Electrical Eng. (Eng. 203) 3
Electrical Tests (Eng. 205) 1
Elec. Eng. Lab'y (Eng. 208) ..4
Practical Mechanics (Eng. 321)1
Shop Work (Eng. 371) 4
Laboratory (Eng. 377) 2
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

SENIOR CLASS.

First Term.

English (Ac. 108) 2
Physics (Ac. 505) 2
Electrical Eng. (Eng. 217) or Civil Eng. 3
Heating and Ventilating (Eng. 334) 2
Thermodynamics (Eng. 331) ..5
Machine Design (Eng. 609) ...1
Machine Design (Eng. 610) ...6
Elec. Eng. Lab'y (Eng. 218) ..4
Mech. Eng. Lab'y (Eng. 381) ..4
Technical Writing (Eng. 612) 3
Military Science (Ac. 600) 1

Second Term.

Economics (Ac. 2) 2
Physics (Ac. 505) 2
Hydraulic Power (Eng. 333) ..5
Power Plant Eng. (Eng. 332) ..5
Refrigeration (Eng. 336) 2
Machine Design (Eng. 608) ...2
Machine Design (Eng. 610) ...6
Mech. Eng. Lab'y (Eng. 382) ..4
Thesis (Eng. 384) 2
Military Science (Ac. 600) 1

Third Term.

Economics (Ac. 2) 2
Astronomy (Ac. 2) 2
Power Plant Eng. (Eng. 332) ..5
Metallurgy (Agr. 104b) 3
Contracts and Specifications (Eng. 613) 2
Refrigeration (Eng. 336) 2
Machine Design (Eng. 608) ...2
Machine Design (Eng. 610) ...6
Mech. Eng. Lab'y (Eng. 383) ..4
Thesis (Eng. 384) 4
Military Science (Ac. 600) 1

MINING ENGINEERING.

Surveying (Eng. 105)
Forty-eight hours per week for four weeks immediately after commencement in summer camp.

SOPHOMORE CLASS.

First Term.

English (Ac. 103a) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
R. R. Surveying (Eng. 104) ...5
Descriptive Geometry (Eng. 602) 4
Physics (Ac 504) 3
Mechanic Arts (Eng. 361) 4

Physical Laboratory (Ac. 502) 2
Physical Training (Ac. 600a) .2
Military (Ac. 600) 3

Second Term.

English (Ac. 103) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Mechanic Arts (Eng. 362) 4
Physical Laboratory (Ac. 502) 2
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Third Term.

English (Ac. 103c) 3
Mathematics (Ac. 404) 5
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Mechanic Arts (Eng. 362) 5
Physical Laboratory (Ac. 502) 2
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

JUNIOR CLASS.

First Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Mine Surveying (Eng. 401) ...5
Geology (Eng. 435) 2
Drawing (Eng. 403) 4
Mineralogy Lab'y (Eng. 431) 4
Chemical Lab'y (Agr. 110a) ...6
Practical Mechanics (Eng. 321)1
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Geology (Eng. 435) 2
Drawing (Eng. 403) 4
Mining Engineering (Eng. 402)5
Mineralogy Lab'y (Eng. 432) ..4
Chemical Lab'y (Agr. 110a) ..6
Practical Mechanics (Eng. 321)1
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Third Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Geology (Eng. 435) 2
Drawing (Eng. 403) 4
Mining Engineering (Eng. 402)5
Mineralogy Lab'y (Eng. 433) ..4
Chemical Lab'y (Agr. 110a) ..6
Practical Mechanics (Eng. 321)1
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Summer Course, Engineering 404. Taken immediately after commencement.

SENIOR CLASS.

First Term.

English (Ac. 108) 2
Physics (Ac. 505) 2
Economic Geology (Eng. 442) 2
Mining Engineering (Eng. 411) 3
Electrical Eng. (Eng. 204) 2
*Machine Shop (Eng. 374) 4
Metallurgy (Agr. 104) 3
Drawing (Eng. 412) 3
Assaying (Agr. 110d) 8
Metallurgical Lab'y (Eng. 413) 3
Military Science (Ac. 600) 1

Second Term.

Economics (Ac. 2) 2
Physics (Ac. 505) 2
Hydraulics (Eng. 110) 5
Mining Engineering (Eng. 411)3
Electrical Eng. (Eng. 204) 2
*Machine Shop (Eng. 374) 4
Metallurgy (Agr. 104) 3
Drawing (Eng. 412) 3
Assaying (Agr. 110d) 8
Metallurgical Lab'y (Eng. 413) 3
Military Science (Ac. 600) 1

Third Term.

Economics (Ac. 2) 2
Astronomy (Ac. 506) 2
Economic Geology (Eng. 443) .2
Mining Engineering (Eng. 411)3
Electrical Eng. (Eng. 204a) ...2
*Machine Shop (Eng. 374) 4
Metallurgy (Agr. 104b) 3
Drawing (Eng. 412) 3
Assaying (Agr. 110d) 8
Metallurgical Lab'y (Eng. 413) 3
Military Science (Ac. 600) 1

*Electrical laboratory may be substituted.

CHEMICAL ENGINEERING.

SOPHOMORE CLASS.

First Term.

English (Ac. 103a) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5

Physical Laboratory (Ac. 502) 2
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

English (Ac. 103c) 3
Mathematics (Ac. 404) 5
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Shop Work (Eng. 362) 5
Physical Laboratory (Ac. 502) 2
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

JUNIOR CLASS.

First Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Strength of Materials (Eng. 322) 3
Graphic Statics (Eng. 607) 2
Machine Design (Eng. 608) 3
Electrical Eng. (Eng. 201) 3
Electrical Meas. (Eng. 205) ...1
Elec. Eng. Lab'y (Eng. 206) ..4
Practical Mechanics (Eng. 321)1
Shop Work (Eng. 371) 6
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Kinematics (Eng. 606) 3
Machine Design (Eng. 608) ..5
Electrical Eng. (Eng. 202) 3
Electrical Meas. (Eng. 205) ...1
Elec. Eng. Lab'y (Eng. 207) ..4
Practical Mechanics (Eng. 321)1
Shop Work (Eng. 371) 6
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Kinematics (Eng. 606) 3
Machine Design (Eng. 608) ...5
Electrical Eng. (Eng. 203) 3
Electrical Tests (Eng. 205) 1
Elec. Eng. Lab'y (Eng. 208) ..4
Practical Mechanics (Eng. 321)1
Shop Work (Eng. 371) 4
Laboratory (Eng. 377) 2
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

SENIOR CLASS.

First Term.

English (Ac. 108) 2
Physics (Ac. 505) 2
Electrical Eng. (Eng. 217) or Civil Eng. 3
Heating and Ventilating (Eng. 334) 2
Thermodynamics (Eng. 331) ..5
Machine Design (Eng. 609) ...1
Machine Design (Eng. 610) ...6
Elec. Eng. Lab'y (Eng. 218) ..4
Mech. Eng. Lab'y (Eng. 381) ..4
Technical Writing (Eng. 612) 3
Military Science (Ac. 600) 1

Second Term.

Economics (Ac. 2) 2
Physics (Ac. 505) 2
Hydraulic Power (Eng. 333) ..5
Power Plant Eng. (Eng. 332) ..5
Refrigeration (Eng. 336) 2
Machine Design (Eng. 608) ...2
Machine Design (Eng. 610) ...6
Mech. Eng. Lab'y (Eng. 382) ..4
Thesis (Eng. 384) 2
Military Science (Ac. 600) 1

Third Term.

Economics (Ac. 2) 2
Astronomy (Ac. 2) 2
Power Plant Eng. (Eng. 332) ..5
Metallurgy (Agr. 104b) 3
Contracts and Specifications (Eng. 613) 2
Refrigeration (Eng. 336) 2
Machine Design (Eng. 608) ...2
Machine Design (Eng. 610) ...6
Mech. Eng. Lab'y (Eng. 383) ..4
Thesis (Eng. 384) 4
Military Science (Ac. 600) 1

MINING ENGINEERING.

Surveying (Eng. 105)
Forty-eight hours per week for four weeks immediately after commencement in summer camp.

SOPHOMORE CLASS.

First Term.

English (Ac. 103a) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
R. R. Surveying (Eng. 104) ...5
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Mechanic Arts (Eng. 361) 4

Physical Laboratory (Ac. 502) 2
Physical Training (Ac. 600a) .2
Military (Ac. 600) 3

Second Term.

English (Ac. 103) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Mechanic Arts (Eng. 362) 4
Physical Laboratory (Ac. 502) 2
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

English (Ac. 103c) 3
Mathematics (Ac. 404) 5
Applied Mechanics (Eng. 312) 3
Descriptive Geometry (Eng. 602) 4
Physics (Ac. 504) 3
Mechanic Arts (Eng. 362) 5
Physical Laboratory (Ac. 502) 2
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

JUNIOR CLASS.

First Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Mine Surveying (Eng. 401) ...5
Geology (Eng. 435) 2
Drawing (Eng. 403) 4
Mineralogy Lab'y (Eng. 431) 4
Chemical Lab'y (Agr. 110a) ...6
Practical Mechanics (Eng. 321) 1
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Geology (Eng. 435) 2
Drawing (Eng. 403) 4
Mining Engineering (Eng. 402) 5
Mineralogy Lab'y (Eng. 432) ..4
Chemical Lab'y (Agr. 110a) ..6
Practical Mechanics (Eng. 321) 1
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

English (Ac. 107) 3
Mathematics (Ac. 405) 3
Geology (Eng. 435) 2
Drawing (Eng. 403) 4
Mining Engineering (Eng. 402) 5
Mineralogy Lab'y (Eng. 433) ..4
Chemical Lab'y (Agr. 110a) ..6
Practical Mechanics (Eng. 321) 1
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Summer Course, Engineering 404. Taken immediately after commencement.

SENIOR CLASS.

First Term.

English (Ac. 108) 2
Physics (Ac. 505) 2
Economic Geology (Eng. 442) 2
Mining Engineering (Eng. 411) 3
Electrical Eng. (Eng. 204) 2
*Machine Shop (Eng. 374) 4
Metallurgy (Agr. 104) 3
Drawing (Eng. 412) 3
Assaying (Agr. 110d) 8
Metallurgical Lab'y (Eng. 413) 3
Military Science (Ac. 600) 1

Second Term.

Economics (Ac. 2) 2
Physics (Ac. 505) 2
Hydraulics (Eng. 110) 5
Mining Engineering (Eng. 411) 3
Electrical Eng. (Eng. 204) 2
*Machine Shop (Eng. 374) 4
Metallurgy (Agr. 104) 3
Drawing (Eng. 412) 3
Assaying (Agr. 110d) 8
Metallurgical Lab'y (Eng. 413) 3
Military Science (Ac. 600) 1

Third Term.

Economics (Ac. 2) 2
Astronomy (Ac. 506) 2
Economic Geology (Eng. 443) .2
Mining Engineering (Eng. 411) 3
Electrical Eng. (Eng. 204a) ...2
*Machine Shop (Eng. 374) 4
Metallurgy (Agr. 104b) 3
Drawing (Eng. 412) 3
Assaying (Agr. 110d) 8
Metallurgical Lab'y (Eng. 413) 3
Military Science (Ac. 600) 1

*Electrical laboratory may be substituted.

CHEMICAL ENGINEERING.

SOPHOMORE CLASS.

First Term.

English (Ac. 103a) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5

Eng. Drawing (Eng. 603) 4
Physics (Ac. 504) 3
Mechanic Arts (Eng. 361) 4
Chem. Laboratory (Agr. 110a) 6
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Term.

English (Ac. 103c) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
Eng. Drawing (Eng. 603) 4
Physics (Ac. 504) 3
Applied Mech. (Eng. 312 3
Mechanic Arts (Eng. 362) 4
Chem. Laboratory (Agr. 110a) 6
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Third Term.

English (Ac. 103c) 3
Mathematics (Ac. 404) 5
Eng. Drawing (Eng. 603) 4
Physics (Ac. 504) 3
Applied Mechanics (Eng. 312) 3
Mechanic Arts (Eng. 362) 5
Chem. Laboratory (Agr. 110a) 6
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

JUNIOR CLASS.

First Term.

English (Ac. 107) or French or German 3
Mathematics (Ac. 405) 3
Organic Chemistry (Agr. 103a)3
Industrial Chem. (Agr. 102a) .3
Geology (Eng. 435) 2
Chemical Lab'y (Quant. Agr. 110b) 9
Mineralogy Lab'y (Eng. 431) ..4
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Term.

English (Ac. 107) or French or German 3
Mathematics (Ac. 405) 3
Organic Chemistry (Agr. 103a)3
Industrial Chem. (Agr. 102a) .3
Geology (Eng. 435) 2
Chemical Lab'y (Quant. Agr. 110b) 9
Mineralogy Lab'y (Eng. 432) ..4
Physical Training (Ac. 600a)..2
Military (Ac. 60) 3

Third Term.

English (Ac. 107) or French or German 3
Mathematics (Ac. 405) 3
Organic Chemistry (Agr. 103a)2
Industrial Chem. (Agr. 102a) .4
Geology (Eng. 435) 2
Chemical Lab'y (Quant. Agr. 110b) 9
Mineralogy Lab'y (Eng. 433) ..4
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

SENIOR CLASS.

First Term.

English (Ac. 108) 2
Physical Chem. (Agr. 108) 2
German or French 3
Economic Geology (Eng. 442) .2
Metallurgy (Agr. 104) 3
Theoretical Chem. (Agr. 107) .2
Electrical Eng. (Eng. 204) 2
Chemical Lab'y and Assaying (Agr. 110) 9
Chemical Lab'y (Org. Agr. 110f) 4
Metallurgical Lab'y (Eng. 413) 3
Military Science (Ac. 600) 1

Second Term.

Economics (Ac. 2) 2
Physical Chem. (Agr. 108) 2
German or French 3
Metallurgy (Agr. 104) 3
Electrical Eng. (Eng. 204) 2
Gas Engines (Eng. 324) 2
Engineering Chem. (Agr. 106) 2
Chemical Lab'y and Assaying (Agr. 110c) 9
Chemical Lab'y (Org. Agr. 110f) 4
Metallurgical Lab'y (Eng. 413) 3
Military Science (Ac. 600) 1

Third Term.

Economics (Ac. 2) 2
Physical Chem. (Agr. 108) ...2
German or French 3
Economic Geology (Eng. 443) 2
Metallurgy (Agr. 104b) 3
Electrical Eng. (Eng. 204a) ...2
Engineering Chem. (Agr. 106) 2
Chemical Lab'y and Assaying (Agr. 110c) 9
Chemical Lab'y (Org. Agr. 110f) 4
Metallurgical Lab'y (Eng. 413) 3
Military Science (Ac. 600) 1

CHEMISTRY AND METALLURGY

Sophomore Class.

Students in the Sophomore class in this course may take either the course prescribed for sophomore students in chemical engineering or that prescribed for students pursuing the General Course.

Junior Class.

First Term.

English (Ac. 107) 3
Organic Chemistry (Agr. 103a) 3
Industrial Chem. (Agr. 102a) .. 3
Geology (Eng. 435) 2
Advanced Inorganic Chemistry (Agr. 111) 2
Chemical Lab'y (Quant. Agr. 110b) 9
Mineralogy Lab'y (Eng. 431) .. 4
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Second Term.

English (Ac. 107) 3
Organic Chem. (Agr. 103a) ... 3
Industrial Chem. (Agr. 102a) .. 3
Geology (Eng. 435) 2
Advanced Inorganic Chemistry (Agr. 111) 2
Chemical Lab'y (Quant. Agr. 110b) 9
Mineralogy Lab'y (Eng. 432) .. 4
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Third Term.

English (Ac. 107) 3
Organic Chem. (Agr. 103a) ... 2
Industrial Chem. (Agr. 102a) .. 4
Geology (Eng. 435) 2
Advanced Inorganic Chemistry (Agr. 111) 2
Chemical Lab'y (Quant. Agr. 110b) 9
Mineralogy Lab'y (Eng. 433) .. 4
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Senior Class.

First Term.

English (Ac. 108) 2
Physical Chem. (Agr. 108) 2
German or French 3
Economic Geology (Eng. 442) 2
Metallurgy (Agr. 104) 3
Theoretrical Chem. (Agr. 107) 2
Bacteriology (Vet. 118) 6
Chemical Lab'y and Assaying (Agr. 110c) 9
Metallurgical Lab'y (Eng. 413) 3
Military Science (Ac. 600) 1

Second Term.

Economics (Ac. 2) 2
Physical Chemistry (Agr. 108) 2
German or French 3
Metallurgy (Agr. 104) 3
Engineering Chem. (Agr. 106) 2
Bacteriology (Vet. 118) 6
Chemical Lab'y and Assaying (Agr. 110c) 9
Metallurgical Lab'y (Eng. 413) 3
Military Science (Ac. 600) 1

Third Term.

Economics (Ac. 2) 2
Physical Chemistry (Agr. 108) 2
German or French 3
Economic Geology (Eng. 443) 2
Metallurgy (Agr. 104b) 3
Engineering Chem. (Agr. 106) 2
Chemical Lab'y and Assaying (Agr. 110c) 9
Chemical Lab'y (Org. Agr. 110f) 6
Metallurgical Lab'y (Eng. 412) 3
Military Science (Ac. 600) 1

TWO-YEAR COURSE IN APPLIED ELECTRICITY

First Year.

First Term.

English (special course) 3
Mathematic (special course) .. 5
Electrical Eng. (Eng. 204) 3
Engines and Boilers (Eng. 323) 3
Drawing (Eng. 601) 4
Electrical Lab'y (Eng. 206) 4
Shop Work (Eng. 361) 4
Power Plant (Eng. 220) 4
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Second Term.

English (special course) 3
Mathematics (special course) .. 5
Electrical Eng. (Eng. 204) 3
Gas Engines (Eng. 324) 3
Drawing (Eng. 601) 4
Shop Work (Eng. 362) 4
Power Plant (Eng. 220) 4
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Third Term.

English (special course) 3
Mathematics (special course)..5
Electrical Eng. (Eng. 205) ...3
Trans. Power (Eng. 325) 3
Drawing (Eng. 601) 4
Electrical Lab'y (Eng. 208) ..4
Shop Work (Eng. 362) 4
Power Plant (Eng. 220) 4
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

SECOND YEAR.

First Term.

English (special course) 3
Mathematics (Ac. 401) 5
Electrical Eng. (Eng. 217) ...4
Practical Mech. (Eng. 321) ..1
Drawing (Eng. 608) 4
Electrical Lab'y (Eng. 218) ...4
Shop Work (Eng. 362) 4
Power House (Eng. 220) 4
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Term.

English (special course).....3
Electrical Eng. (Eng. 217a) ..4
Applied Mechanics (Eng. 312) 3
Practical Mechanics (Eng. 321) 1
Drawing (Eng. 608) 4
Electrical Lab'y (Eng. 218a) ..4
Mech. Lab'y (Eng. 378) 3
Shop Work (Eng. 374) 4
Power House (Eng. 220) 4
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Third Term.

Englisl. (special course) 3
Street Railways (Eng. 214) ...2
Electrical Eng. (Eng. 217b) ..4
Applied Mechanics (Eng. 312) 3
Practical Mechanics (Eng. 321)1
Drawing (Eng. 608) 4
Electrical Lab'y (Eng. 218b) ..4
Shop Work (Eng. 374) 4
Power House (Eng. 220) 4
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

SPECIAL COURSE FOR ROAD FOREMEN AND INSPECTORS

First Term.

Mathematics (special course) .5
Drawing (Eng. 601) 4
Surveying (Eng. 102) 5
Roads and Pavements (special course) 3
Mechanic Arts (Eng. 351 or 361) 4

Second Term.

Mathematics (special course) .5
Drawing (Eng. 601) 4
Surveying (Eng. 102) 5
Roads and Pavements (special course) 3
Road Materials Lab'y (Eng. 108) 3
Mechanic Arts (Eng. 352 or 362) 4

Third Term.

Mathematics (special course) .5
Drawing (Eng. 601) 4
S irveying (Eng. 102) 5
Roads and Pavements (special course) 3
Road and Street Improvements (Eng. 109) 3

SPECIAL ONE-YEAR COURSE IN WIRELESS TELEGRAPHY.

First Term.

English (special course) 3
Mathematics (special course) .5
Electrical Eng. (Eng. 204) 3
Engines and Boilers (Eng. 323) 3
Drawing (Eng. 601) 4
Electrical Lab'y (Eng. 206) ...4
Shop Work (Eng. 361) 4
Wireless Tel. (Eng. 221) 4
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Term.

English (special course) 3
Mathematics (special course) .5
Electrical Eng. (Eng. 204) 3
Gas Engines (Eng. 324) 3
Drawing (Eng. 601) 4
Electrical Lab'y (Eng. 207) ...4
Shop Work (Eng. 362) 4
Wireless Tel. (Eng. 221) 4
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Third Term.

English (special course) 3
Mathematics (special course) .5
Electrical Eng. (Eng. 205) ...3
Trans. Power (Eng. 325) 3
Drawing (Eng. 601) 4
Electrical Lab'y (Eng. 208) ...4
Shop Work (Eng. 362) 4
Wireless Tel. (Eng. 221) 4
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

TWO-YEAR MINING COURSE.

First Year

First Term.

English (special course) 3
Mathematics (Ac. 401) 5
Mining (Eng. 401) 5
Mineralogy (Eng. 431) 4
Drawing (Eng. 601) 4
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

English (special course) 3
Mathematics (Ac. 402) 4
Mining (Eng. 402) 5
Surveying (Eng. 102) 4
Mineralogy (Eng. 432) 4
Drawing (Eng. 601) 4
Physical Training (Ac. 600) ..2
Military (Ac. 600) 3

Third Term.

English (special course) 3
Mathematics (Ac 402) 4
Mining (Eng. 402) 5
Surveying (Eng. 103) 4
Mineralogy (Eng. 433) 4
Drawing (Eng. 601) 4
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Year.

First Term.

English (special course) 3
Mining (Eng. 411) 3
Elec. Eng. (Eng. 204) 3
Surveying (Eng. 104) 5
Eng. Geology (Eng. 436) 2
Practical Mech. (Eng. 321) ...1
Shop Work (Eng. 361) 4
Electrical Lab'y 4
Drawing 4
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

English (special course) 3
Mining (Eng. 411) 3
Elec. Eng. (Eng. 204) 3
Applied Mech. (Eng. 312) 3
Eng. Geology (Eng. 436) 2
Practical Mech. (Eng. 321) ...1
Shop Work (Eng. 362) 4
Electrical Lab'y 4
Drawing 4
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

English (special course) 3
Mining (Eng. 411) 3
Elec. Eng. (Eng. 217b) 4
Applied Mech. (Eng. 312) 3
Eng. Geology (Eng. 436) 2
Practical Mech. (Eng. 321) 1
Shop Work (Eng. 362) 4
Electrical Lab'y 4
Drawing 4
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

TWO YEAR COURSE IN AUTO MECHANICS.

First Year.

First Term.

English (Ac. 102) 3
Mathematics (Ac. 401) 5
Drawing (Eng. 601) 4
Engines and Boilers (Eng. 323) 3
Auto Mech. Theory (Eng. 302) 3
Auto Mech. Lab'y (Eng. 354) 14
Oxy-Acetylene Welding (Eng. 355) 2
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

English (Ac. 102) 3
Mathematics (Ac. 401) 5
Drawing (Eng. 601) 4
Engines and Boilers (Eng. 323) 3
Auto Mech. Theory (Eng. 302) 3
Auto Mech. Lab'y (Eng. 354) ..14
Oxy-Acetylene Welding (Eng. 355) 2
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

English (Ac. 102) 3
Mathematics (Ac. 401) 5
Drawing (Eng. 601) 4
Engines and Boilers (Eng. 323) 3
Auto Mech. Theory (Eng. 302) 3
Auto Mech. Lab'y (Eng. 354) ..14
Oxy-Acetylene Welding (Eng. 355) 2
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Year.

First Term.

English (Ac. 103) 3
Physics (Ac. 504) 3
Drawing (Eng. 604) 4
Practical Mech. (Eng. 321) ...1
Auto Mech. Theory (Eng. 313) 3

Auto Mech. Lab'y (Eng. 363)..14
Oxy-Acetylene Welding (Eng. 364) 2
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

English (Ac. 103) 3
Physics (Ac. 504) 3
Drawing (Eng. 604) 4
Practical Mech. (Eng. 321) ...1
Auto Mech. Theory (Eng. 313) 3
Auto Mech. Lab'y (Eng. 363)..14
Oxy-Acetylene Welding (Eng. 364) 2
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Third Term.

English (Ac. 103) 3
Physics (Ac. 504) 3
Drawing (Eng. 604) 4
Practical Mech. (Eng. 321) ...1
Auto Mech. Theory (Eng. 313) 3
Auto Mech. Lab'y (Eng. 363) .14
Oxy-Acetylene Welding (Eng. 364) 2
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

ARCHITECTURE.

Freshman Class.

First Term.

English (Ac. 102) 3
History (Ac. 201) 2
Mathematics (Ac. 401) 5
Chemistry (Agr. 101) 3
Freehand Drawing (Arch. 11) 4
Descriptive Geometry (Arch. 13) 4
Elements of Arch. (Arch. 19)..6
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Term.

English (Ac. 102) 3
History (Ac. 201) 2
Mathematics (Ac. 402) 4
Chemistry (Agr. 101) 3
Freehand Drawing (Arch. 11) 4
Shades and Shadows (Arch. 15)4
Elements of Arch. (Arch. 19)..6
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Third Term.

English (Ac. 102) 3
History (Ac. 201) 2
Mathematics (Ac. 402) 4
Chemistry (Agr. 101) 3
Freehand Drawing (Arch. 11) 4
Surveying (Eng. 101) 4
Elements of Arch. (Arch. 19)..6
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Sophomore Class

First Term.

English (Ac. 103a) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
Physics (Ac. 504) 3
History of Arch. (Arch. 21)...2
Charcoal Drawing (Arch. 25) .4
Architectural Composition (Arch 28) 3
Arch. Design (Arch. 29) 9
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Term.

English (Ac. 103c) 3
History (Ac. 202) 2
Mathematics (Ac. 403) 5
Physics (Ac. 504) 3
Applied Mech. (Eng. 312) 3
History of Arch. (Arch 21)...2
Charcoal Drawing (Arch 25)..4
Arch. Design (Arch. 29) 9
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Third Term.

English (Ac. 103c) 3
Mathematics (Ac.404) 5
Physics (Ac. 504) 3
Applied Mech. (Eng. 312) 3
History of Arch. (Arch 21) ...2
Charcoal Drawing (Arch. 25) .4
Perspective (Arch. 27) 4
Arch. Design (Arch. 29) 9
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Junior Class.

First Term.

History of Arch. (Arch. 31) ...3
Mathematics (Ac. 405) 3
French (Ac. 301a) 3
Building Construction Masonry (Arch. 33) 3
Strength of Materials (Eng. 322) 3
Water Color Painting (Arch. 37) 4
Arch. Design (Arch. 39) 15
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

History of Arch. (Arch. 31) ---3
Mathematics (Ac. 405) -------3
French (Ac. 301b) ----------3
Building Construction, Carpentry (Arch. 34) --------3
Graphic Statics (Eng. 111) ----3
Water Color Painting (Arch. 37) ----------4
Arch. Design (Arch. 39) -----15
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

Third Term.

Historic Ornament (Arch. 32) -3
Mathematics (Ac. 405) -------3
French (Ac. 301c) ----------3
Plumbing and Drainage (Arch. 35) ----------3
Water Color Painting (Arch. 37) ----------4
Structural Details (Eng. 112)--6
Working Drawings (Arch. 38) 15
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

SENIOR CLASS.

First Term.

History of Painting (Arch. 42) 1
French (Ac. 302a) ----------3
Heating and Ventilation (Eng. 334) ----------2
Theory of Structures (Eng. 113)3
Structural Steel Design (Eng. 114) ----------6
Life Class (Arch. 46) --------3
Clay Modeling (Arch. 47) ----3
Arch. Design (Arch. 49) -----18
Military Science (Ac. 600) ---1

Second Term.

History of Sculpture (Arch. 43) ----------1
French (Ac. 302b) ----------3
Wiring and Illumination (Eng. 209) ----------2
Economics (Ac. 2) ----------2
Reinforced Concrete (Eng. 118) ----------3
Life Class (Arch 46) --------3
Clay Modeling (Arch. 47) ----3
Arch. Design (Arch. 49) -----18
Military Science (Ac. 600) ---1

Third Term.

Professional Practice (Arch. 44) ----------1
French (Ac. 302c) ----------3
Economics (Ac. 2) ----------2
Reinforced Concrete Design (Eng. 118) ----------3
Life Class (Arch. 46) --------3
Clay Modeling (Arch. 47) ----3
Seminar (Arch. 48) ----------1
Arch. Design (Arch. 49) -----18
Military Science (Ac. 600) ---1

ARCH. ENGINEERING.

JUNIOR CLASS.

First Term.

History of Architecture (Arch. 31) ----------3
Mathematics (Ac. 405) -------3
Building Construction, Masonry (Arch. 33) ----------3
Geology (Eng. 436) ----------2
Strength of Materials (Eng. 322) ----------3
Graphic Statics (Eng. 111) ---3
Arch. Design (Arch. 39) -----15
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

Second Term.

History of Arch. (Arch. 31) ---3
Mathematics (Ac. 405) -------3
Building Construction, Carpentry (Arch. 34) ----------3
Geology (Eng. 436) ----------2
Graphic Statics (Eng. 111) ---3
Hydraulics (Eng. 116) -------3
Arch. Design (Arch. 39) -----15
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

Third Term.

Historic Ornament (Arch. 32) -3
Mathematics (Ac. 405) -------3
Plumbing and Drainage (Arch. 35) ----------3
Geology (Eng. 436) ----------2
Topographical Surveying (Eng. 103) ----------4
Structural Details (Eng. 112)--6
Working Drawings (Arch. 38) 15
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

SENIOR CLASS.

First Term.

Heating and Ventilation (Eng. 334) ----------2
Theory of Structures (Eng. 113) ----------3
Structural Steel Design (Eng. 114) ----------6
Elec. and Magnetism (Eng. 204) 2
Engines and Boilers (Eng. 323) 3
Roads and Pavements (Eng. 107) ----------3

Water Supply and Purification (Eng. 141) ----3
Technical Writing (Eng. 610) -3
Elective ----2
Military Science (Ac. 600) ----1

Second Term.

Wiring and Illumination (Eng. 209) ----2
Advanced Stress Analysis (Eng. 145) ----3
Advanced Structural Steel Design (Eng. 148) ----4
Electricity and Magnetism (Eng. 204) ----2
Gas Engines (Eng. 324) ----3
Reinforced Concrete (Eng. 118) ----3
Testing Laboratory (Eng. 382) -4
Economics (Ac. 2) ----2
Elective ----4
Military Science (Ac. 600) ----1

Third Term.

Professional Practice (Arch. 44) 1
Indeterminate Structures (Eng. 149) ----3
Structural Engineering (Eng. 146) ----6
Dynamo Electric Machinery (Eng. 204a) ----2
Transmission of Power (Eng. 325) ----3
Reinforced Concrete Design (Eng. 152) ----3
Sewerage (Eng. 143) ----3
Economics (Ac. 2) ----2
Elective ----2
Military Science (Ac. 600) ----1

TWO-YEAR SPECIAL COURSE IN ARCHITECTURE.

First Year.

First Term.

History of Arch. (Arch. 21) ---2
Building Construction, Masonry (Arch. 33) ----3
Freehand Drawing (Arch. 11) -4
Water Color Painting (Arch. 37) ----4
Descriptive Geometry (Arch. 13) ----4
Arch. Composition (Arch. 28) 3
Arch. Design (Arch. 29) ----9
Elective ----3
Physical Training (Ac. 600a) 2
Military (Ac. 600) ----3

Second Term.

History of Arch. (Arch. 21) ---2
Building Construction, Carpentry (Arch. 34) ----3
Freehand Drawing (Arch. 11) 4
Charcoal Drawing (Arch. 25) -4
Water Color Painting (Arch. 37) 4
Shades and Shadows (Arch. 15) ----4
Arch. Design (Arch. 29) ----9
Elective ----5
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----3

Third Term.

History of Arch. (Arch. 21) --2
Plumbing and Drainage (Arch. 35) ----3
Freehand Drawing (Arch. 11) -4
Charcoal Drawing (Arch. 25) -4
Water Color Painting (Arch. 37) ----4
Perspective (Arch. 15) ----4
Arch. Design (Arch. 29) ----9
Elective ----5
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----3

Second Year.

First Term.

History of Arch. (Arch. 31) ---3
History of Painting (Arch. 42) -1
Heating and Ventilation (Eng. 334) ----2
Life Class (Arch. 46) ----3
Clay Modeling (Arch. 47) ----3
Arch. Design (Arch. 49) ----18
Elective ----6
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----3

Second Term.

History of Arch. (Arch. 31) --3
History of Sculpture (Arch. 43) 1
Wiring and Illumination (Eng. 209) ----2
Life Class (Arch. 46) ----3
Clay Modeling (Arch. 47) ----3
Arch. Design (Arch. 49) ----18
Elective ----6
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----3

Third Term.

Historic Ornament (Arch. 32) 3
Professional Practice (Arch. 44) 1
Life Class (Arch. 46) ----3
Clay Modeling (Arch. 47) ----3
Seminar (Arch. 48) ----1
Arch. Design (Arch. 49) ----18
Elective ----6
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----3

COLLEGE OF AGRICULTURAL SCIENCES

AGRICULTURE

FRESHMAN CLASS.

First Term.

English (Ac. 102) 3
History (Ac. 201) 2
Mathematics (Ac. 402a) 3
Chemistry (Agr. 101) 3
Drawing (Eng. 601) 4
Corn (Agr. 202) 4
Mechanic Arts (Eng. 351) 4
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Second Term.

English (Ac. 102) 3
History (Ac. 201) 2
Surveying (Eng. 102) 4
Mathematics (Ac. 402a) 3
Chemistry (Agr. 101) 3
Drawing (Eng. 601) 4
Mechanic Arts (Eng. 352) 4
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Third Term.

English (Ac. 102) 3
History (Ac. 201) 2
Mathematics (Ac. 402a) 3
Surveying (Eng. 102) 4
Chemistry (Agr. 101) 3
Drawing (Eng. 601) 4
Mechanic Arts (Eng. 353) 4
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 4

SOPHOMORE CLASS.

First Term.

English (Ac. 103a) 3
History (Ac. 202) 2
Farm Acounts (Agr. 203) 2
Zoology (Agr. 701) 6
Botany (Agr. 301) 6
Physics (Ac. 504) 3
Organic Chemistry (Agr. 103b) 3
Stock Judging (Agr. 802) 2
Chemical Lab'y (Agr. 110a) ... 6
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Second Term.

English (Ac. 103c) 3
History (Ac. 202) 2
Zoology (Agr. 701) 6
Botany (Agr. 301) 6
Physics (Ac. 504) 3
Stock Judging (Agr. 803) 4
Organic Chemistry (Agr. 103b) 3
Chemical Lab'y (Agr. 110a) ... 6
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Third Term.

English (Ac. 103c) 3
Botany (Agr. 301) 6
Physics (Ac. 504) 3
Horticulture (Agr. 601) 6
Agriculture (Agr. 203) 4
Agricultural Chem. (Agr. 105) 4
Chemical Lab'y (Agr. 110a) .. 6
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

JUNIOR CLASS.

First Term.

English (a) (Ac. 107) 3
Dairying (Agr. 804) 4
Agr. Bacteriology (Agr. 303) .. 6
*Veterinary Science (a) (Vet. 102) 5
Drainage (Agr. 520) 4
Horticulture (Agr. 602) 2
Chemical Lab'y (a) (Agr. 110b) 6
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Second Term.

English (a) (Ac. 107) 3
Botany (Agr. 304) 6
*Veterinary Science (a) (Vet. 102) 5
An. Husbandry (Agr. 805) 4
Horticulture (Agr. 603, 604) .. 6
Geology (Eng. 434) 4
Chemical Lab'y (a) (Agr. 110b) 6
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Third Term.

English (a) (Ac. 107) 3
Botany (Agr. 304) 6
*Veterinary Science (a) (Vet. 102) 5
Animal Husbandry (Agr. 806) 4
Agriculture (Agr. 205) 4
Horticulture (Agr. 603) 4
Chemical Lab'y (a) (Agr. 110b) 6
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

(a) Education or a modern language may be substituted.

*Veterinary Science is required of students who specialize in animal husbandry.

SENIOR CLASS.

The studies of the course in Agriculture are divided into five groups, as follows:

Group "A" agronomy: Gives special prominence to crops, soils and farm machinery.

Group "B," horticulture: Gives special reference to fruit growing, trucking, greenhouse management, and landscape gardening.

Group "C," animal husbandry: Gives special prominence to all work pertaining to live stock.

Group "D," agricultural chemistry: Especially designed to prepare students for experiment station and fertilizer control work.

Group "E," botany: Designed to train students for station work or to pursue advanced work in botany.

The elective work in each group must be approved at the beginning of the senior year by the president and the professor in charge, and with the required work must aggregate at least twenty-one hours, counting two hours laboratory equal to one hour. At least nineteen hours of this work must be taken in each term; and the maximum for any term is a total of twenty-five such hours in all classes, except by special permission of the faculty.

The giving of an elective course will be optional with the professor in charge unless it be elected by at least four students.

ELECTIVES FOR SENIOR GROUPS

First Term.

Cotton (Agr. 206) ----------4
Animal Husbandry (Agr. 807. 808) ----------6
Horticulture (Agr. 605) ------5
Canning (Agr. 606) ----------3
Botany (Agr. 308, 307) -------6
Vet. Science (Vet. 102) ------5
Industrial Chem. (Agr. 102a) --3
French (Ac. 302a) ----------4
German (Ac. 305a) ----------4
Physics (Ac. 505) ----------2
Chemical Lab'y (Agr. 110b) --6
Mathematics (Ac. 403 & 404) --5
Education ----------3

Second Term.

Agriculture (Agr. 207) -------4
Animal Husbandry (Agr. 808, 809, 811, and 813) -------6
Horticulture (Agr. 605, 606) --5
Botany (Agr. 305) ----------6
Botany (Agr. 308) ----------6
Vet. Science (Vet. 102) -------5
Industrial Chem. (Agr. 102a) --3
French (Ac. 302b) ----------3
German (Ac. 305b) ----------4
Chemical Lab'y (Agr. 110b) ---6
Mathematics (Ac. 403, 404, or 405) ----------5
Foresty (Agr. 608) ----------5
Education ----------3
Farm Engines (Agr. 521) -----2

Third Term.

Agriculture (Agr. 208) -------4
Animal Husbandry (Agr. 810, 818) ----------4
Horticulture (Agr. 605, 609) --7
Botany (Agr. 305, 308) -------6
French (Ac. 302c) ----------4
Vet. Science (Vet. 102) -------5
Industrial Chem. (Agr. 102a) --3
German (Ac. 305c) ----------3
Mathematics (Ac. 403, 404, or 405) ----------5
Education ----------3

REQUIRED SUBJECTS FOR SENIOR GROUPS

GROUP "A" AGRONOMY.

First Term.

Agr. and Agr. Lab. (Agr. 206) --4
Entomology (Agr. 702) ------5
Military Science (Ac. 600) ---1
Soils and Soils Lab'y (Agr. 211)5
Botany (Agr. 308) ----------6
English (Ac. 108) ----------2
Thesis ----------

Second Term.

Agriculture (Agr. 207) -------2
Farm Machinery (Agr. 522) --2
Foresty (Agr. 608) or Entomology (703) ----------5
Military Science (Ac. 600) ---1
Soils and Soils Lab'y (Agr. 211)5
Botany (Agr. 305) ----------6
Economics (Ac 2) ----------2
Thesis (Agr. 209) ----------

Third Term.

Agr. and Agr. Lab. (Agr. 208)..4
Entomology (703) 5
Military Science (Ac. 600) 1
Soils and Soils Lab. (Agr. 211)5
Botany (Agr. 305) 6
Economics (Ac. 2) 2
Thesis (Agr. 209) .....

Electives: The additional work is to be selected from the elective subjects listed.

GROUP "B," HORTICULTURE.

First Term.

Horticulture (Agr. 605, 606) ..8
Entomology (Agr. 702) 5
Military Science (Ac. 600) 1
Botany (Agr. 308) 6
Soils (Agr. 211) 5
English (Ac. 108) 2
Thesis (Agr. 611) .....

Second Term.

Horticulture (Agr. 605, 609) ..8
Foresty (Agr. 608) 4
Military Science (Ac. 600) 1
Botany (Agr. 305) 6
Entomology (Agr. 703) 5
Soils (Agr. 211) 5
Economics (Ac. 2) 2
Thesis (Agr. 610) .....

Third Term.

Horticulture (Agr. 605, 609) ..7
Entomology (Agr. 704) 5
Botany (Agr. 305) 6
Military Science (Ac. 600) 1
Soils (Agr. 211) 5
Economics (Ac. 2) 2
Thesis (Agr. 610) .....

Electives: The additional work is to be selected from the subjects listed above.

GROUP "C," ANIMAL HUSBANDRY

First Term.

Animal Husbandry (Agr. 707, 808, 812) 7
Animal Hus. Lab. (Agr. 812) ..2
Entomology (Agr. 702) 5
Military Science (Ac. 600) 1
Soils and Soils Lab'y (Agr. 211)5
English (Ac. 2) 2
Botany (Agr. 307) 6

Second Term.

Animal Husbandry (Agr. 808, 809, 813) 6
Animal Husbandry Lab. (Agr. 809, 811, 812) 6
Military Science (Ac. 600) 1
Soils and Soils Lab. (Agr. 211)5
Entomology (Agr. 703) 5
Economics (Ac. 2) 2
Thesis .....

Third Term.

Animal Husbandry (Agr. 808, 810, 812) 6
Animal Husbandry Lab. (Agr. 812) 2
Entomology (Agr. 704) 5
Military Science (Ac. 600) 1
Soils and Soils Lab'y (Agr. 211)5
Economics (Ac. 2) 2
Thesis .....

Electives: The additional work is to be selected from the elective subjects listed above or from the course in Veterinary Medicine.

GROUP "D," AGRICULTURAL CHEMISTRY.

First Term.

Chemical Lab. (Agr. 110) 6
Entomology (Agr. 702) 5
Military Science (Ac. 600) 1
German (a) (Ac. 306a) 3
Soils (Agr. 211) 5
Thesis .....

Second Term.

Chemical Lab. (Agr. 110) 6
Military Science (Ac. 600) 1
German (a) (Ac. 306b) 3
Entomology (Agr. 703) 5
Soils (Agr. 211) 5
Thesis .....

Third Term.

Chemical Lab. (Agr. 110) 6
Entomology (Agr. 704) 5
Military Science (Ac. 600) 1
German (a) (Ac. 306b) 3
Entomology (Agr. 703) 5
Soils (Agr. 211) 5
Thesis .....

(a) French may be substituted.

Electives: The additional work is to be selected from the elective subjects listed above.

GROUP "E." BOTANY

First Term.

Botany (Agr. 307, 308) 6
Soils and Soils Lab. (Agr. 211)5
Entomology (Agr. 702) 5
Military Science (Ac. 600) 1
English (Ac. 108) 2
Thesis .....

Second Term.

Botany (Agr. 305) 6
Soils and Soils Lab. (Agr. 211)5
Forestry and Forestry Lab. (Agr. 608) 5
Military Science (Ac. 600) 1
Entomology (Agr. 703) 5
Economics (Ac. 2) 2
Thesis .....

Third Term.

Botany (Agr. 307, 308) 6
Soils and Soils Lab'y (Agr. 211)5
Entomology (Agr. 704) 5
Military Science (Ac. 600) 1
Economics (Ac. 2) 2
Thesis .....

Electives: To be selected, subject to the approval of the professor.

TWO-YEAR COURSE IN AGRICULTURE

Continuation in any subject is conditioned upon satisfactory progress in that subject.

First Year.

First Term.

English 3
Chemistry (Agr. 101) 3
Veterinary Science (Vet. 102)..5
Mechanic Arts (Eng. 351) 4
Corn (Agr. 202) 4
Farm Accounts (Agr. 203) 2
Dairying (Agr. 804) 4
Landscape Gardening (Agr. 602) 2
Judging Beef Cattle (Agr. 802) 2
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Term.

English 3
Chemistry (Agr. 101) 3
Veterinary Science (Vet. 102) ..5
Mechanic Arts (Eng. 352) 4
Vegetable Gardening (Agr. 603) 4
Orchard Technique (Agr. 604) 2
Judging Dairy Cattle (Agr. 803)4
Meats (Agr. 809) 2
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Third Term.

English 3
Chemistry (Agr. 101) 3
Veterinary Science (Vet. 102) ..5
Mechanic Arts (Eng. 353) 4
Principles of Plant Culture (Agr. 601) 2
Vegetable Gardening (Agr. 603)4
Small Grains (Agr. 204) 4
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Year.

First Term.

Principles of Breeding (Agr. 807) 2
Canning (Agr. 606) 3
Pomology (Agr. 605) 5
Zoology (Agr. 701) 6
Cotton (Agr. 206) 4
Entomology (Agr. 702) 5
Soils (Agr. 211) 5
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Term.

Orchard Technique (Agr. 604) 2
Forestry (Agr. 608) 5
Miscellaneous Crops (Agr. 207a) 2
Swine Judging (Agr. 805) 4
Zoology (Agr. 701) 6
Soils (Agr. 211) 5
Pomology (Agr. 605) 5
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Third Term.

Pomology (Agr. 605) 5
Sheep Judging (Agr. 806) 5
Poultry (Agr. 810) 2
Soils (Agr. 211) 5
Entomology (Agr. 703) 5
Farm Management (Agr. 208) ..4
Forage Crops (Agr. 205) 4
Terracing and Drainage (Agr. 214) 2
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

DEPARTMENT OF PHARMACY

TWO-YEAR COURSE IN PHARMACY.

FIRST YEAR.

First Term.

Latin (special course) 3
Chemistry (Agr. 101) 3
Physiology (Vet. 101) 2
Pharmacy (Agr. 401a) 3
Botany (Agr. 301) 6
Pharmaceutical Lab'y (Agr. 401b) 8
Chemical Lab'y (Agr. 110a) ...6
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Term.

Latin (a) (special course) 3
Chemistry (Agr. 101) 3
Physiology (Vet. 101) 2
*Pharmacy (Agr. 401a) 3
Pharmacognosy (Agr. 402) ...4
Botany (Agr. 301) 6
Chemical Lab'y (Agr. 110a) ..6
Pharmaceutical Laboratory (Agr. 401b) 8
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Third Term.

Botany (Agr. 301) 6
Chemistry (Agr. 101) 3
Phar. Chem. (Agr. 406) 3
Physiology (Vet. 101) 2
Pharmacognosy (Agr. 402) ..4
Chemical Lab'y (Agr. 110a) ..6
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

(a) First half of term.
*Substitute Phar. Chem. (Agr. 406) latter half term.

SECOND YEAR.

First Term.

Pharmacy (Agr. 403a) 3
Adv. Pharmacog. (Agr. 404) ..4
Pharmaceutical Laboratory (Agr. 403b) 12
Organic Chem. (Agr. 103a) ...2
Chemical Lab'y (Agr. 110c) ..6
Bacteriology (Vet. 108) 6
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Term.

Pharmacy (Agr. 403a) 3
*Adv. Pharmacog. (Agr. 404) ..4
Alkaloidal Assay (Agr. 403c) ..9
Organic Chem. Agr. 103a) ...2
Chemical Lab'y (Agr. 110c) ...6
Bacteriology (Vet. 108) 6
United States Phar. (Agr. 407) 3
xPharmacology (Vet. 120) 3
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

Pharmacy (Agr. 403a) 3
Prescriptions (Agr. 405) 3
United States Phar. (Agr. 407) 3
Pharmacology (Vet. 120) 3
Prescription Laboratory Agr. 403d) 4
Organic Chem. (Agr. 103a) ...2
Toxicology (Agr. 110e) 7
Thesis .....
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

xSubstitute for Bacteriology in latter half second term.
*Substitute Prescriptions (Agr. 405) latter half second term.

THREE-YEAR COURSE IN PHARMACY

FIRST YEAR.

First Term.

English (Ac. 102a) 3
Latin (Ac. 209) 3
Chemistry (Agr. 101) 3
Pharmacy Lab'y (Agr. 401b) ..8
Pharmacy (Agr. 401a) 3
Physiology (Vet. 101) 2
Chemical Lab'y (Agr. 110a) ..6
Physical Training (Ac. 600a)..2
Military (Ac. 600) 3

Second Term.

English (Ac. 102b) 3
Latin (Ac. 209) 3
Chemistry (Agr. 101) 3
xPharmacy (Agr. 401a) 3
Physiology (Vet. 101) 2
Pharmacy Lab'y (Agr. 401b) ..8
Chemical Lab'y (Agr. 110a) ..6
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

English (Ac. 102b) ----------3
Latin (Ac. 209) ----------3
Chemistry (Agr. 101) --------3
Physiology (Vet. 101) -------2
Pharmaceutical Chem. (Agr. 406) ----------3
Chemical Lab'y (Agr. 110a) --6
Physical Training (Ac. 600a) -2
Military (Ac. 600) ----------3
xSubstitute Pharmaceutical Chemistry (Agr. 406) latter half term.

SECOND YEAR.

First Term.

Pharmacy (Agr. 403a) -------3
Physics (Ac. 504) ----------3
Botany (Agr. 301) ----------6
Pharmacy Lab'y (Agr. 403b --12
Chemical Lab'y (Agr. 110b) --6
Physical Training (Ac. 600a) -2
Military (Ac. 600) ----------3

Second Term.

Pharmacy (Agr. 403a) -------3
Physics (Ac. 504) ----------3
Pharmacognosy (Agr. 402) ---4
Botany (Agr. 301) ----------6
Alkaloidal Assay (Agr. 403c) --9
Chemical Lab'y (Agr. 110b) --6
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----------3

Third Term.

Pharmacy (Agr. 403a) -------3
Physics (Ac. 504) ----------3
Pharmacognosy (Agr. 402) ---4
Botany (Agr. 301) ----------6
Prescription Lab'y (Agr. 403) 4
Toxicology (Agr. 110c) ------7
Physical Training (Ac. 600a) -2
Military (Ac. 600) ----------3

THIRD YEAR.

First Term.

Advanced Pharmacognosy (Agr. 404) ----------4
Organic Chemistry (Agr. 103a) 2
German (Ac. 305a) ----------4
Bacteriology (Vet. 108) ------6
Zoology (Agr. 701) ----------5
Chemical Lab'y (Agr. 110c) --6
Food and Drug Analysis (Agr. 408j) ----------12
Physical Training (Ac. 600a) -2
Military (Ac. 600) ----------3

Second Term.

xxAdvanced Pharmacognosy (Agr. 404) ----------4
Organic Chemistry (Agr. 103a) 2
United States Pharmacopœia (Agr. 407) ----------3
xBacteriology (Vet. 108) -----6
German (Ac. 305b) ----------4
Zoology (Agr. 701) ----------5
Chemical Lab'y (Agr. 110c) --6
Organic Chemical Lab'y (Agr. 408g) ----------8
Physical Training (Ac. 600a) --2

Third Term.

Military (Ac. 600) ----------3
Prescriptions (Agr. 405) -----3
German (Ac. 305c) ----------4
Organic Chemistry (Agr. 103a) 2
United States Pharmacopoeia (Agr. 407) ----------3
Pharmacology (Vet. 120) ----3
Chemical Lab'y (Agr. 110c) --6
Organic Chemical Lab'y (Agr. 408g) ----------8
Thesis ----------4
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----------3
xxSubstitute Prescriptions (Agr. 405) latter half second term.
xSubstitute Pharmacology (Vet. 120) latter half second term.

PHARMACY

FRESHMAN CLASS.

First Term.

English (Ac. 102) ----------3
History (Ac. 201) ----------2
Latin (Ac. 209) ----------3
Mathematics (Ac. 401) -------5
Chemistry (Agr. 101) --------3
Drawing (Eng. 601) ----------4
Mechanic Arts (Eng. 351) ----4
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----------3

Second Term.

English (Ac. 102) ----------3
History (Ac. 201) ----------2
Latin (Ac. 209) ----------3
Mathematics (Ac. 402) -------4
Chemistry (Agr. 101) --------3
Drawing (Eng. 601) ----------4
Mechanic Arts (Eng. 352) ----4
Physical Training (Ac. 600a) --2
Military (Ac. 600) ----------3

Third Term.

English (Ac. 102) ----------3
History (Ac. 201) ----------2
Latin (Ac. 205) ----------3
Mathematics (Ac. 402) -------4
Chemistry (Agr. 101) --------3
Drawing (Eng. 601) ---------4
Mechanic Arts (Eng. 353) ----4
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

SOPHOMORE CLASS.

First Term.

Physics (Ac. 504) ----------3
History (Ac. 202) ----------2
xMathematics (Ac. 403) -----5
Botany (Agr. 301) ----------6
English (Ac. 103a) ---------3
Physiology (Vet. 101) -------2
Chemical Lab'y (Agr. 110a) --6
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

Second Term.

Physics (Ac. 504) ----------3
History (Ac. 202) ----------2
English (Ac. 103c) ---------3
xMathematics (Ac. 403) ------5
Botany (Agr. 301) ----------6
Physiology (Vet. 101) -------2
Chemical Lab'y (Ac. 110a)----6
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

Third Term.

Physics (Ac. 504) ----------3
English (Ac. 103c) ---------3
xMathematics (Ac. 404) ------5
Botany (Agr. 301) ----------6
Physiology (Vet. 101) -------2
Chemical Lab'y (Agr. 110a) --6
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3
xWith approval of faculty other work may be substitnted.

JUNIOR CIASS.

First Term.

German (Ac. 305a) ----------4
English (Ac. 107) ----------3
Pharmacy (Agr. 401a) -------3
Pharmaceutical Lab'y (Agr. 401b) ----------8
Chemical Lab'y (Agr. 110b) --6
Physical Training (Ac. 600a) -2
Military (Ac. 600)----------3

Second Term.

German (Ac. 305b) ----------3
English (Ac. 107) ----------3
xPharmacy (Agr. 401a) ------3
Pharmaceutical Laboratory Agr. 401b) ----------8
Pharmacognosy (Agr. 402 ----4
Chemical Lab'y (Agr. 110b) --6
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

Third Term.

German (Ac. 305c) ----------4
English (Ac. 107) ----------3
Phar. Chem. (Agr. 406) ------3
Pharmacognosy (Agr. 402) ---4
Chemical Lab'y (Agr. 110b) --6
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3
xSubstitute Phar. Chem. (Agr. 406 latter half term.

SENIOR CLASS.

First Term.

Bacteriology and Bact. Lab'y (Vet. 108) ----------6
Organic Chem. (Agr. 103a) ---2
Pharmacy (Agr. 403a) -------3
Adv. Pharmacog. (Agr. 404) --3
Military Science (Ac. 600) ---1
Chemical Lab'y (Agr. 110c) --6
Pharmaceutical Laboratory (Agr. 403b) ----------12

Second Term.

Bacteriology and Bac. Lab'y (Vet. 108) ----------6
Adv. Pharmacog. (Agr. 404) --4
United States Phar. (Agr. 407) 3
xPharmacology (Vet. 120) ----3
Organic Chem. (Agr. 103a) -- 2
Pharmacy (Agr. 403a) -------3
Military Science (Ac. 600 ----1
Chemical Lab'y (Agr. 110c) --6
Alkaloidal Assay (Agr. 403c) --9

Third Term.

United States Phar. (Agr. 407) 3
Pharmacology (Vet. 120) ----3
Organic Chem. (Agr. 103a) ---2
Pharmacy (Agr. 403a) -------3
Prescriptions (Agr. 405) -----3
Military Science (Ac. 600) ----1
Toxicology (Agr. 110e) ------6
Urinalysis (Vet. 117) --------3
Prescription Laboratory (Agr. 403d) ----------6
Thesis ----------4
xSubstitute for Bacteriology in latter half term.

PRE-MEDICAL COURSE

First Year.

First Term.

xEnglish (Ac. 102) 3
Chemistry (Agr. 101) 3
Chemical Lab'y (Agr. 110a) .. 6
Trigonometry (Ac. 401) 5
Botany (Agr. 301) 6
Physiology (Vet. 101) 2
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Second Term.

xEnglish (Ac. 102) 3
Chemistry (Agr. 101) 3
Chemical Laboratory (Agr. 110a) 6
College Algebra (Ac. 402) 4
Botany (Agr. 301) 6
Physiology (Vet. 101) 2
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Third Term.

xEnglish (Ac. 102) 3
Inorganic Chemistry (Agr. 101) 4
Chem. Lab'y (Agr. 110a) 6
College Algebra (Ac. 402) 4
Botany (Agr. 301) 6
Physiology (Vet. 101) 2
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

xLatin, French or German may be substituted.

Second Year.

First Term.

French or German 4
Organic Chemistry (Agr. 103a) 2
Quant. Chem. Lab. (Agr. 110b) 6
Physics (Ac. 504) 3
Physical Laboratory (Ac. 502) 2
Zoology (Agr. 701) 5
Histology (Vet. 108) 5
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Second Term.

French or German 3
Organic Chem. (Agr. 103a) 2
Quant. Chem. Lab. (Agr. 110b) 6
Physics (Ac. 504) 3
Physical Laboratory (Ac. 502) 2
Zoology (Agr. 701) 5
Histology (Vet. 108) 5
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Third Term.

French or German 4
Organic Chemistry (Agr. 103a) 2
Quant. Chem. Lab. (Agr. 110b) 6
Physics (Ac. 504) 3
Physical Lab'y (Ac. 502) 2
Toxicology (Agr. 110e) 7
Histology (Vet. 108) 5
Physiological Chem. (Vet. 119) 4
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

SCHOOL OF AGRICULTURAL EDUCATION

Freshman Class.

First Term.

English (Ac. 102) 3
History (Ac. 201) 2
Chemistry (Agr. 101) 3
Agr. Mathematics (Ed. 24) 3
Farm Carpentry (Ed. 25) 4
Agr. Drawing (Ed. 28) 4
Corn (Agr. 202) 4
Poultry Husbandry (Ed. 30) .. 4
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 4

Second Term.

English (Ac. 102) 3
History (Ac. 201) 2
Chemistry (Agr. 101) 3
Agr. Mathematics (Ed. 24) 3
Farm Blacksmithing (Ed. 24) .. 4
Agr. Surveying (Ed. 29) 4
Poultry Husbandry (Ed. 31) .. 4
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 4

Third Term.

English (Ac. 102) 3
History (Ac. 201) 2
Chemistry (Agr. 101) 3
Agr. Mathematics (Ed. 24) 3
Farm Machinery (Ed. 27) 4
Agr. Surveying (Ed. 29) 4
Poultry Husbandry (Ed. 32) .. 4
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Sophomore Class.

First Term.

Agr. English (Ed. 36, 37) 3
History (Ac. 202) 2
Psychology (Ed. 1) 2
Chemical Lab'y (Agr. 110a) .. 6
Zoology (Agr. 701) 6
Botany (Agr. 301) 6
Organic Chemistry (Agr. 103b) 3
Animal Husbandry (Agr. 802) .. 2
Physical Training (Ac. 600a) .. 2
Military (Ac. 600) 3

Second Term.

Agr. English (Ed. 36, 37) 3
History (Ac. 202) 2
Psychology (Ed. 1) 2
Chemical Lab'y (Agr. 110a) ..6
Zoology (Agr. 701) 6
Botany (Agr. 301) 6
Organic Chemistry (Agr. 103b) 3
Animal Husbandry (Agr. 803) .4
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

Agr. English (Ed. 36, 37) 3
Psychology (Ed. 1) 2
Chemical Lab'y (Agr. 110a) ..6
Botany (Agr. 301) 6
Agr. Chemistry (Agr. 105) 4
Small Grains (Agr. 203) 4
Horticulture (Agr. 601) 6
Military (Ac. 600) 3

JUNIOR CLASS.

First Term.

Vocational Psychology (Ed. 2) 2
History of Agr. Education (Ed. 8) 2
Rural Social Conditions (Ed. 34) 3
Dairying (Agr. 804) 4
Veterinary Science (Vet. 102) 5
Agr. Bacteriology (Agr. 303) ..6
Landscape Gardening (Agr. 602) 2
Drainage and Terracing (Agr. 520) 4
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

Principles of Education (Ed. 3) 2
Principles of Rural Economics (Ed. 35) 3
Swine Judging (Agr. 805) 4
Veterinary Science (Vet. 102) .5
Plant Physiology (Agr. 304) ...6
Vegetable Gardening (Agr. 603) 4
Orchard Technique (Agr. 604) 2
Agr. Geology (Eng. 434) 4
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

Principles of Education (Ed. 3) 2
Principles of Rural Economics (Ed. 35) 3
Sheep Judging (Agr. 806) 2
Veterinary Science (Vet 102) .5
Plant Physiology (Agr. 304) ..6
Vegetable Gardening (Agr. 603) 4
Forage Plants (Agr. 205) 4
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

SENIOR CLASS.

Group A, Agronomy.
Group B, Horticulture.
Group C, Animal Husbandry.

Electives: Senior candidates for the degree of Bachelor of Science in Agricultural Education shall elect a sufficient number of courses in Education and in the College of Agriculture to make, with the required courses listed below, a total of not fewer than twenty-one session-hours. All electives shall be made with the advice and approval of the Director of the School of Agricultural Education and the Professors concerned. Electives shall be made with the view of developing particular mastery in not less than two nor more than three subjects.

Thesis: All candidates for the degree, shall, in addition to completing the prescribed courses and electives, write a thesis on some subject in the field of his major interests. This thesis must show original investigation and a comprehensive mastery of the subject chosen.

GROUP A, AGRONOMY.

First Term.

Teaching High School Agriculture (Ed. 7) 3
Agricultural Extension Teaching (Ed. 10) 2
Agricultural Conference (Ed. 39) .....
Agricultural Journalism (Ed. 38) 1
Cotton (Agr. 206) 4
Entomology (Agr. 702) 5
Military Science (Ac. 603) 1

Second Term.

Teaching High School Agriculture (Ed. 7) 3
*Practice in Agricultural Teaching (Ed 11) .....
Agricultural Conference (Ed. 39) .....
The High School Pupil (Ed. 14) 2

Agricultural Journalism (Ed. 38) ----------1
Cotton Classing (Agr. 207) ----2
Soils and Soils Lab'y (Agr. 211)5
Farm Engines (Agr. 521) ----2
Farm Machinery (Agr. 522) --2
Forestry (Agr. 608) ----------5
Military Science (Ac. 604) ----1

Third Term.

Teaching High School Agriculture (Ed. 7) ----------3
Agriculture Conference (Ed. 39) ----------
Agricultural Journalism (Ed. 38) ----------1
Farm Management (Agr. 208) -4
Soils and Soils Lab'y (Agr. 211)5
Bees and Bee Keeping (Agr. 703) ----------5
Military Science (Ac. 605) ----1
*Or in third term.

GROUP B, HORTICULTURE

First Term.

Teaching High School Agriculture (Ed. 7) ----------3
Agricultural Extension Teaching (Ed. 10) ----------2
Agricultural Conference (Ed. 39) ----------
Agricultural Journalism (Ed. 38) ----------1
Soils and Soils Lab'y (Agr. 211)5
Entomology (Agr. 702) -------5
Fruit Growing (Agr. 605) ----5
Canning (Agr. 606) ----------3
Plant Pathology (Agr. 305) ---6
Military Science (Ac. 603) ----1

Second Term.

Teaching High School Agriculture (Ed. 7) ----------3
*Practice in Agricultural Teaching (Ed. 11) --------
Agricultural Conference (Ed. 39) ----------
The High School Pupil (Ed. 14)2
Agricultural Journalism (Ed. 38) ----------1
Soils and Soils Lab'y (Agr. 211)5
Fruit Growing (Agr. 605) ----5
Plant Pathology (Agr. 305) ---6
Forestry (Agr. 608) ----------5
Military Science (Ac. 604) ----1

Third Term.

Teaching High School Agriculture (Ed. 7) ----------3
Agricultural Conference (Ed. 39) ----------
Agricultural Journalism (Ed. 38) ----------1
Soils and Soils Lab'y (Agr. 211)5
Plant Breeding (Agr. 609) ----5
Fruit Growing (Agr. 605) ----5
Bees and Bee Keeping (Agr. 703) ----------5
Military Science (Ac. 605) ----1
*Or in third term.

GROUP C, ANIMAL HUSBANDRY

First Term.

Teaching High School Agriculture (Ed. 7) ----------3
Agricultural Extension Teaching (Ed. 10) ----------2
Agricultural Conference (Ed. 39) ----------
Agricultural Journalism (Ed. 38) ----------1
Soils and Soils Lab'y (Agr. 211)5
Animal Breeding (Agr. 807) ---2
Advanced Feeding (Agr. 808) -3
Live Stock Management (Agr. 812) ----------3
Military Science (Ac. 603) ----1

Second Term.

Teaching High School Agriculture (Ed. 7) ----------3
*Practice in Agricultural Teaching (Ed. 11) --------
Agricultural Conference (Ed. 39) ----------
The High School Pupil (Ed. 14)2
Agricultural Journalism (Ed. 38) ----------1
Soils and Soils Lab'y (Agr. 211)5
Advanced Feeding (Agr. 808) -3
Meats (Agr. 809) ----------2
Judging Horses and Mules (Agr. 811) ----------2
Live Stock Management (Agr. 812) ----------3
Herd Book Study (Agr. 813) --2
Military Science (Ac. 604) ----1

Third Term.

Teaching High School Agriculture (Ed. 7) ----------3
Agricultural Conference (Ed. 39) ----------
Agricultural Journalism (Ed. 38) ----------1
Soils and Soils Lab'y (Agr. 211)5
Advanced Feeding (Agr. 808) -3
Live Stock Management (Agr. 812) ----------3
Military Science (Ac. 605) ----1
*Or in third term.

COLLEGE OF VETERINARY MEDICINE AND SURGERY.

Freshman Class.

First Term.

General Chem. (Agr. 101) 3
Physiology (Vet. 101) 2
English (Ac. 102) 3
Anatomy and Anat. Lab'y (Vet. 107) 10
Histology (Vet. 108) 5
Stock Judging (Vet. 109) 2
Chemical Lab'y (Agr. 110a) ...6
Vet. Science (Vet. 102) 2
Clinics (Vet. 112) 3
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

General Chem. (Agr. 101) 3
Physiology (Vet. 101) 2
English (Ac. 102) 3
Anatomy and Anat. Lab'y (Vet. 107) 10
Histology (Vet. 108) 5
Stock Judging (110) 4
Chemical Lab'y (Agr. 110a) ..6
Vet. Medicine (Vet. 106) 3
Clinics (Vet. 112) 3
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

General Chem. (Agr. 101) 3
Physiology (Vet. 101) 2
English (Ac. 102) 3
Stock Judging (111) 2
Anatomy and Anat. Lab'y (Vet. 107) 10
Histology (Vet. 108) 5
Chemical Lab'y (Agr. 110a) ..6
Vet. Medicine (Vet. 106) 3
Clinics (Vet. 112) 3
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Sophomore Class.

First Term.

Embryology (Vet. 113) 3
Organic Chem. (Agr. 103b) 3
Anatomy (Vet. 115) 10
Vet. Medicine (Vet. 116) 3
Clinics (Vet. 117) 6
Bacteriology (Vet. 118) 8
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

Organic Chem. (Agr. 103b) 3
Anatomy (Vet. 115) 8
Vet. Medicine (Vet. 116) 3
Pharmacy (120) 10
Bacteriology (Vet. 118) 6
Clinics (Vet. 117) 8
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

Physiological Chem. (119) 4
Vet. Medicine (Vet. 116) 3
Anatomy (Vet. 115) 8
Pharmacy (120) 10
Bacteriology (Vet. 118) 6
Botany (Agr. 302) 6
Clinics (Vet. 117) 8
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Junior Class.

First Term.

Surgery (Vet. 122) 4
Obstetrics (Vet. 123) 4
Anatomy (Vet. 124) 8
Vet. Medicine (Vet. 126) 3
Botany (Agr. 307) 5
Vet. Physiology (Vet. 127) 3
Clinics (Vet. 128) 10

Second Term.

Surgery (Vet. 122) 4
Obstetrics (Vet. 123) 2
Anatomy (Vet. 124) 8
Vet. Medicine (Vet. 126) 4
Vet. Physiology (Vet. 127) 4
Infectious Diseases (Vet. 129) ..3
Clinics (Vet. 128) 10

Third Term.

Surgery (Vet. 122) 4
Obstetrics (Vet. 123) 2
Vet. Medicine (Vet. 126) 4
Vet. Physiology (Vet. 127) 3
Infectious Diseases (Vet. 129) ..3
Anatomy (Vet. 124) 8
Clinics (Vet. 128) 10

Senior Class.

First Term.

Therapeutics (Vet. 131) 5
Principles of Breeding (Agr. 808) 2
Surgery (Vet. 135) 2
Meat Inspection (Vet. 138) 3
Pathology (Vet. 137) 7
Clinics (Vet. 136) 8
Thesis (Vet. 143) 4

Second Term.

Therapeutics (Vet. 116) 5
Dairying (Agr. 814) 4
Meat Inspection (Vet. 138) 3
Parasites (Vet. 140) 3
Clinics (Vet. 135) 10
Pathology (Vet. 137) 8
Thesis (Vet. 143) 4

Third Term.

Toxicology (Agr. 110e) 7
Urinalysis (Vet. 117) 3
Milk Inspection (Vet. 139) 5
Surgical Exercises (Vet. 141) ..3
Parasites (Vet. 140) 3
Feeds and Feeding (134) 3
Clinics (Vet. 136) 10
Thesis (Vet. 143) 4

DESCRIPTION OF COURSES

ACADEMIC DEPARTMENTS

PSYCHOLOGY AND ECONOMICS

PROFESSOR THACH.
PROFESSOR RUTLAND.

1. Courses in psychology will be given in the department of education.

2. Economics: The object of this course is to give the student a general view of economics. It includes a study of wealth, value, price, competition, monopolization, production, and distribution; the evolution of industry, and the leading economic questions of today. Collateral reading, oral reports, and occasional written papers are required. *Two hours, second and third terms. M. W.* 11-12.

ENGLISH

PROFESSOR RUTLAND.
PROFESSOR TAYLOR.
ASSISTANT ADAMS.

The mastery of one's native language is a pre-requisite to high attainment in any profession. In a technological institute, where only brief courses in foreign language can be pursued by most of the students, this mastery of the native speech becomes, if possible, even more essential to future success than in the classical colleges. This consideration alone would justify courses in English in technological institutions, but when we add to this the great cultural value of the study of language and literature, the wisdom of compulsory courses becomes obvious. The courses in English comprise the study of the theory of composition together with much practice in its application, both in writing and in speaking, a survey of the history of American and English literature, and an intensive study of the greatest periods and writers in English literature.

Requirements in English for admission are set forth on a preceding page. No student will be classed as regular in any course until he has met these requirements.

The requirements as to thesis and as to proficiency in English for certificates and degrees are set forth in a preceding section of this catalogue.

The following courses are offered:

FRESHMAN CLASS.

102. Composition and Literature. The chief aim of this course is to aid the student to master spoken and written English for his practical needs as an educated man. In addition to frequent themes, oral and written reports, class criticism and discussion, conferences with the instructor are required in order to correct errors, to redirect misguided effort, and to arouse each student to his highest attainment.

Another aim of this course is to stimulate the enjoyment and appreciation of literature as a means to culture. Assigned readings from American and English writers, both standard and contemporary, will be announced from time to time and encouragement will be given for considerable voluntary reading. This part of the course will be conducted by means of lectures and conferences on the nature and function of literature, its types and forms, and its moral and artistic values.

In order futher to encourage freshmen to participate in worthy student activities and to put forth special effort to develop their powers of expression, the department of English will give credit (a) for public speaking in literary societies, (b) for writing done for publication or original speeches delivered on college occasions, and (c) for voluntary reading in general literature done under the direction of the head of the department. Further information about this work is given at the beginning of the college session. Text-books will be announced later. *M. W. F.*, 10-11.

SOPHOMORE CLASS.

103. (a) Argumentation for sophomores. This course consists of the study of the essentials of argumentation and requires extensive practice in gathering material, note-making, brief-making, analysis and criticism of evidence, and practical debating. Weekly themes in argumentative form and one lengthy argument at the end of the course are required. Text-book to be announced. *Three hours, first term. M. W. F.* 9-10.

(b) Debating for sophomores. All sophomores are required to meet at least once fortnightly at some other hour than the regular recitation period for drill in parliamentary law and for practice in actual debating.

(c) English literature for sophomores. This course covers the whole range of English literature from Anglo-Saxon times to our own, and consists of the interpretative and critical study of selected poetry and prose. The aim is to give the student

not only a definite conception of the periods of literature and of the forces in life that found expression in literature, but also an appreciative understanding of the greater writers and productions. The students are required to keep full notes on the lectures as well as on the class study of selections. Text-books to be announced. *Three hours, second and third terms. M. W. F.* 9-10.

(d) Public speaking. This course may be chosen by sophomores instead of the actual debating required in (b). It is a study of the ends of speech making and the means of securing effectiveness and comprises practical exercises in collecting and organizing material in addition to the study of style and structure of selected speeches and readings. Text-book to be announced.

JUNIOR CLASS.

107. In the junior and senior years students pursuing the general course may form a separate section from the rest of the class. This section is required to do a greater amount of reading and written work than the technical students. Juniors may elect one of the following courses, but the department reserves the right to omit a course in case only a very small number elect it.

(a) Nineteenth century literature. The time will be about equally divided between Wordsworth and his contemporaries and the writers of the Victorian period. This course will involve wide reading, discussions of the technique of the writers, their art, growth of mind, general interpretation of life, and their relation to their own time and discussions of the various movements in science, politics, philosophy, and art in their relation to the literature of the period. The work is carried on partly by lectures and partly by class study of representative masterpieces. Students will be required to take notes on both lectures and class discussions, and to write weekly reports or themes. Text-book will be announced. *Three hours, entire session. M. T. Th.* 12-1.

(b) The essay and the novel. The larger part of the first term will be given to the study of the origin and development of the English Essay. Selected essays representing the seventeenth and eighteenth centuries will be read, and much time will be devoted to the essay of the nineteenth century. The rest of the year will be devoted to the history of the novel. Representative novels from the eighteenth century to the present time are studied; and special attention is given to technic, plot and character analysis, relation to other forms of literature, the writer's conception of his art, and style.

Text-book to be announced. *Three hours, entire session M. T. Th.* 12-1.

(c) Contemporary literature. This course includes a study of recent tendencies in the drama, novel, short story and essay. Magazines such as the Atlantic Monthly, the Nation or the Dial are used as points of departure, but most of the work will consist of extensive assigned readings out of class, together with class-room reports and discussions. Open also to seniors. *Three hours, entire session. M. T. Th.* 12-1.

SENIOR CLASS.

108. The following courses are offered for seniors:

(a) Shakespeare. The development of the English Drama before Shakespeare will be reviewed briefly through assigned reading and lectures and the life of Shakespeare will be included in the matter for final examination, but the class room instruction will be devoted chiefly to a careful study of the plays. During the first few weeks several plays of the different types and representative of the different periods of authorship are given brief treatment. Most of the time, however, is given to the close study of two plays, one comedy, and one tragedy. Text-books to be announced. *Two hours, first term. M. W.* 11-12.

108b. Advanced composition for enginering students. This course is open to both seniors and juniors. The work will consist of themes on technical subjects and quizzes based upon technical reading. Weekly themes of from 1000 to 1500 words are required. There will be individual conferences and class discussions of the papers submitted. The course includes training in condensing and expanding articles, and the making of reports. The second term is given to the production of a weekly technical magazine. The third term is given to the writing, in weekly chapters, of extended themes. The class will be limited to twenty students.

108c. Advanced composition for agricultural students. A parallel course to 107b.

110. Methods of teaching English. If a sufficient number of students apply to the head of the department, a course in methods of teaching English will be offered, the text-book and hours to be determined later.

GRADUATE STUDENTS.

The following courses have been given to graduate students:

(a) Shakespeare: Hamlet, Othello, Macbeth, Merchant of Venice, As You Like It, Henry IV, Richard III, King John.

(b) Dryden's Poetical Works, Arnold's Dramatic Poesy,

Yonge's Essay on Satire, Saintsbury's Dryden, Pope's Poetical Works, Pattison's Satire, Stephen's Pope, Gosse's From Shakespeare to Pope, and Eighteenth Century Literature.

(c) English literature of the eighteenth century: Addison Pope, Gray, Goldsmith, Burns, Cowper and Burke.

(d) American literature: Longfellow, Lowell, Poe.

(e) The English Essay: Bacon, Addison, Steele, Swift, Johnson, Goldsmith, Macaulay, DeQuincey, Lamb, Carlyle.

(f) Milton's Poetical Works: Life, Pattison, Brooke.

(g) Elizabethan, Jacobean, and Caroline literature: Greene, Johnson, Marlowe, Webster, Beaumont, and Fletcher, Brown, Herrick, Bunyan and others.

(h) English literature, 1832-1894.

(i) Chaucer.

(j) English prose fiction.

For the year 1919-20, one of the following courses may be elected by the graduate class:

Anglo-Saxon: A study of the grammar and phonology of Anglo-Saxon, together with the reading of select prose and verse. The class will probably read a portion of Beowulf.

Chaucer: A study of the life and times of Chaucer, together with the readings and critical study of a large portion of his collected writings.

Prose fiction: A study of the development of English fiction, with special emphasis upon the modern novel.

Shakespeare: A critical study of the dramatist's art.

HISTORY AND LATIN.

PROFESSOR PETRIE.
INSTRUCTOR REYNOLDS.
INSTRUCTOR OWSLEY.

HISTORY.

In this department the aim is not so much to memorize facts as to understand them. Strong emphasis is laid on the fact that history is not a succession of isolated facts, but a progressive whole, each event being at once the cause and the effect of other events. The students are taught to investigate the growth of ideas and institutions, the rise and progress of great historical movements, and the reciprocal influences of men and circumstances. Frequent use is made of diagrams, photographs, charts and maps, with which the department is well equipped. Instruction is given by text-books, lectures and class discussion, but a constant effort is made to stimulate to wider reading and research in the library. The following courses are offered:

FRESHMAN CLASS.

201. Industrial and constitutional history of the United States: The course consists of lectures and text-book work, and is somewhat advanced. All students who take it must have previously completed some high school text-book on the history of the United States. Text-books: Hart's Formation of the Union; Wilson's Division and Reunion; Moore's Industrial History of the American People. *Two hours, entire session. T. Th.* 9-10.

SOPHOMORE CLASS.

202. History of Modern Europe: Required of all members of the sophomore class. Some previous knowledge of the subject is desirable, but is not necessary. Text-book: Hazen's Europe Since 1815. *Two hours, first and second terms. T. Th.* 10-11.

203. Civics: This is an advanced course in the nature of our government and its practical working. Text-book: Beard's American Government and Politics. *Three hours, entire session.*

204. A brief course in recent history: Not required of any student, but those who expect to take the general course may take this work. Text-book: Hazen's Europe Since 1815, and current periodicals. *Two hours, third term. T. Th.* 10-11.

SENIOR CLASS.

205. English constitutional history: A course for one year for members of the senior class. Text-book: Ransome's The Growth of the English Constitution.

JUNIOR AND SENIOR CLASSES.

206. Historical laboratory: An opportunity for advanced work in United States history, for those students of the general course who elect it as laboratory work, and for any others who are properly qualified.

The chief object kept in view is training in historical research and in the formation of independent but careful opinions based on the original sources of information, as well as on the standard authorities. Emphasis is laid on the importance of securing proper material for investigation, and every incentive is given to the collection and use of new documents, papers, and letters illustrative of Southern, and especially of Alabama history. The method of work is as follows: Informal lectures are given on important and suggestive points. After each lecture a general discussion follows, and the topics connected with it are assigned to the students with an outline of

Third Term.

English (Ac. 102b) 3
Latin (Ac. 209) 3
Chemistry (Agr. 101) 3
Physiology (Vet. 101) 2
Pharmaceutical Chem. (Agr. 406) 3
Chemical Lab'y (Agr. 110a) ..6
Physical Training (Ac. 600c) ..2
Military (Ac. 600) 3
xSubstitute Pharmaceutical Chemistry (Agr. 406) latter half term.

SECOND YEAR.

First Term.

Pharmacy (Agr. 403a) 3
Physics (Ac. 504) 3
Botany (Agr. 301) 6
Pharmacy Lab'y (Agr. 403b ..12
Chemical Lab'y (Agr. 110b) ..6
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

Pharmacy (Agr. 403a) 3
Physics (Ac. 504) 3
Pharmacognosy (Agr. 402) ...4
Botany (Agr. 301) 6
Alkaloidal Assay (Agr. 403c) ..9
Chemical Lab'y (Agr. 110b) ..6
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

Pharmacy (Agr. 403a) 3
Physics (Ac. 504) 3
Pharmacognosy (Agr. 402) ...4
Botany (Agr. 301) 6
Prescription Lab'y (Agr. 403) 4
Toxicology (Agr. 110c) 7
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

THIRD YEAR.

First Term.

Advanced Pharmacognosy (Agr. 404) 4
Organic Chemistry (Agr. 103a) 2
German (Ac. 305a) 4
Bacteriology (Vet. 108) 6
Zoology (Agr. 701) 5
Chemical Lab'y (Agr. 110c) ..6
Food and Drug Analysis (Agr. 408j) 12
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

xxAdvanced Pharmacognosy (Agr. 404) 4
Organic Chemistry (Agr. 103a) 2
United States Pharmacopoeia (Agr. 407) 3
xBacteriology (Vet. 108) 6
German (Ac. 305b) 4
Zoology (Agr. 701) 5
Chemical Lab'y (Agr. 110c) ..6
Organic Chemical Lab'y (Agr. 408g) 8
Physical Training (Ac. 600a) ..2

Third Term.

Military (Ac. 600) 3
Prescriptions (Agr. 405) 3
German (Ac. 305c) 4
Organic Chemistry (Agr. 103a) 2
United States Pharmacopoeia (Agr. 407) 3
Pharmacology (Vet. 120) 3
Chemical Lab'y (Agr. 110c) ..6
Organic Chemical Lab'y (Agr. 408g) 8
Thesis 4
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3
xxSubstitute Prescriptions (Agr. 405) latter half second term.
xSubstitute Pharmacology (Vet. 120) latter half second term.

PHARMACY

FRESHMAN CLASS.

First Term.

English (Ac. 102) 3
History (Ac. 201) 2
Latin (Ac. 209) 3
Mathematics (Ac. 401) 5
Chemistry (Agr. 101) 3
Drawing (Eng. 601) 4
Mechanic Arts (Eng. 351) 4
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Second Term.

English (Ac. 102) 3
History (Ac. 201) 2
Latin (Ac. 209) 3
Mathematics (Ac. 402) 4
Chemistry (Agr. 101) 3
Drawing (Eng. 601) 4
Mechanic Arts (Eng. 352) 4
Physical Training (Ac. 600a) ..2
Military (Ac. 600) 3

Third Term.

English (Ac. 102) ----------3
History (Ac. 201) ----------2
Latin (Ac. 205) ----------3
Mathematics (Ac. 402) -------4
Chemistry (Agr. 101) --------3
Drawing (Eng. 601) ---------4
Mechanic Arts (Eng. 353) ----4
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

SOPHOMORE CLASS.

First Term.

Physics (Ac. 504) ----------3
History (Ac. 202) ----------2
xMathematics (Ac. 403) -----5
Botany (Agr. 301) ----------6
English (Ac. 103a) ---------3
Physiology (Vet. 101) -------2
Chemical Lab'y (Agr. 110a) --6
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

Second Term.

Physics (Ac. 504) ----------3
History (Ac. 202) ----------2
English (Ac. 103c) ---------3
xMathematics (Ac. 403) ------5
Botany (Agr. 301) ----------6
Physiology (Vet. 101) -------2
Chemical Lab'y (Ac. 110a)----6
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

Third Term.

Physics (Ac. 504) ----------3
English (Ac. 103c) ---------3
xMathematics (Ac. 404) ------5
Botany (Agr. 301) ----------6
Physiology (Vet. 101) -------2
Chemical Lab'y (Agr. 110a) --6
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3
xWith approval of faculty other work may be substitnted.

JUNIOR CIASS.

First Term.

German (Ac. 305a) ----------4
English (Ac. 107) ----------3
Pharmacy (Agr. 401a) -------3
Pharmaceutical Lab'y (Agr. 401b) ----------8
Chemical Lab'y (Agr. 110b) --6
Physical Training (Ac. 600a) -2
Military (Ac. 600)----------3

Second Term.

German (Ac. 305b) ----------3
English (Ac. 107) ----------3
xPharmacy (Agr. 401a) ------3
Pharmaceutical Laboratory Agr. 401b) ----------8
Pharmacognosy (Agr. 402 ----4
Chemical Lab'y (Agr. 110b) --6
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3

Third Term.

German (Ac. 305c) ----------4
English (Ac. 107) ----------3
Phar. Chem. (Agr. 406) ------3
Pharmacognosy (Agr. 402) ---4
Chemical Lab'y (Agr. 110b) --6
Physical Training (Ac. 600a)--2
Military (Ac. 600) ----------3
xSubstitute Phar. Chem. (Agr. 406 latter half term.

SENIOR CLASS.

First Term.

Bacteriology and Bact. Lab'y (Vet. 108) ----------6
Organic Chem. (Agr. 103a) ---2
Pharmacy (Agr. 403a) -------3
Adv. Pharmacog. (Agr. 404) --3
Military Science (Ac. 600) ---1
Chemical Lab'y (Agr. 110c) --6
Pharmaceutical Laboratory (Agr. 403b) ----------12

Second Term.

Bacteriology and Bac. Lab'y (Vet. 108) ----------6
Adv. Pharmacog. (Agr. 404) --4
United States Phar. (Agr. 407) 3
xPharmacology (Vet. 120) ----3
Organic Chem. (Agr. 103a) -- 2
Pharmacy (Agr. 403a) -------3
Military Science (Ac. 600 -----1
Chemical Lab'y (Agr. 110c) --6
Alkaloidal Assay (Agr. 403c) --9

Third Term.

United States Phar. (Agr. 407) 3
Pharmacology (Vet. 120) ----3
Organic Chem. (Agr. 103a) ---2
Pharmacy (Agr. 403a) -------3
Prescriptions (Agr. 405) -----3
Military Science (Ac. 600) ----1
Toxicology (Agr. 110e) ------6
Urinalysis (Vet. 117) --------3
Prescription Laboratory (Agr. 403d) ----------6
Thesis ----------4
xSubstitute for Bacteriology in latter half term.

SENIOR CLASS.

302. (a) A course in reading: Corneille and modern French plays (2 hours a week); laws of grammar and composition (1 hour a week); pronunciation and conversation(1 hour a week). *Four hours, first term. M.* 10-11, *T. Th.* 9-10, *F.* 4-5.

(b) The second term is given to the study of Racine, and the reading of modern French literature (2 hours a week), and to continued study of the structure and syntactical features of the languages in connection with translations into French. *Three hours, second term. M.* 10-11, *T. Th.* 9-10.

(c) The third term includes a study of Moliere (1 hour a week); the history of French literature (1 hour a week); more advanced work in grammar and composition (1 hour a week); and pronunciation and conversation (1 hour a week). *Four hours, third term. M.* 10-11, *T. Th.* 9-10, *F.* 4-5.

303. Teachers' course: During the spring term the work of the senior class will be so modified or supplemented, as to include a short pedagogical course for students who expect to teach French. This will consist chiefly of elementary work in grammar and syntax, and a study of the best methods of giving instruction in this subject. *Third term, senior year.*

GRADUATE STUDENTS.

304. Graduate course: Offered for students who wish to pursue the study of French beyond the scope to which a two-year course necessarily limits them. In addition to the authors studied in the lecture room, a wide and extensive reading of literature is prescribed.

TEXT-BOOKS.

First year: Frazer and Squair's Shorter French Course; Koren and Chapman's French Reader.

Second year: Corneille, Racine, Moliere, selected modern French plays, Duval's Histoire de la Literature Francaise; Frazer and Squair's French Grammar, French Composition.

GERMAN.

The following regular courses are given:

JUNIOR CLASS.

305. (a) A course embracing the fundamental principles of grammar and the essentials of pronunciation leading to the intelligent reading and translation of simple German texts (3 hours a week), and exercises in pronunciation and conversation (1 hour a week). *Four hours, first term. T. Th.* 8-9, *W.* 12-1, *M.* 4-5.

(b) In the second term the reading of simple prose is begun

(2 hours a week), and grammar and composition continued (1 hour a week). *Three hours, second term. T. Th.* 8-9, *W.* 12-1.

(c) Reading of more difficult selections of prose and poetry is begun and continued throughout the third term(2 hours a week). Grammar and composition continued (1 hour a week), and conversational exercises (1 hour a week). *Four hours, third term. T. Th.* 8-9, *W.* 12-1, *M.* 4-5.

SENIOR CLASS.

306. (a) A course of reading in modern German (2 hours a week); structure and syntax of the language with translations into German (1 hour a week); conversation (1 hour a week). *Four hours, first term. M. W. F.* 8-9, *M.* 4-5.

(b) Schiller (2 hours a week); History of German Literature and composition (1 hour a week). *Three hours, second term. M. W. F.* 8-9.

(c) German lyrics and ballads (2 hours a week). German literature (1 hour a week), composition and conversation (1 hour a week). *Four hours, third term. M. W. F.* 8-9, *M.* 4-5.

307. A course for students from the scientific schools, including readings of various scientific subjects, selected to meet the requirements of the class (2 hours a week), grammar and composition (1 hour a week), and conversation (1 hour a week). *Four hours, entire session. Schedule to be arranged.*

308. Teachers' course: During the third term in the senior class of German, the course will be so modified, or supplemented, as to include a short pedagogical course for those students who expect to become teachers of this language. This will consist chiefly of elementary work in grammar and syntax, and a study of the best methods of giving instruction in the subject.

GRADUATE STUDENTS.

309. Advanced course: For those students who wish to pursue the study of German beyond the scope to which a two-year course necessarily limits them. Here, in addition to the authors studied in the lecture room, a wide and extensive reading of authors and literature is prescribed.

TEXT-BOOKS.

First year: Wesselhoeft's German Grammar, Huss's German Reader.

Second year: Schiller, Lessing, selected modern German plays, German lyrics, Bernhardt's Deutsche Litteraturgeschichte, Harris's German Grammar, German Composition.

SPANISH.

310. A course in Spanish is also given, embracing the fundamentals of the language, consisting of a study of the gram-

mar, readings of modern Spanish selections and exercises in conversation. *Three hours, entire session. T. W. F.* 11-12.

Texts: Ingraham-Edgren's Brief Spanish Grammar; Turrell's Spanish Reader.

MATHEMATICS.

PROFESSOR CRENSHAW.
PROFESSOR MESSICK.
PROFESSOR SHI.
INSTRUCTOR ELIZONDO.
INSTRUCTOR STOKES.
INSTRUCTOR DONAHUE.

The courses of instruction offered in this department are designed to give the student that mental discipline and training in logic which will enable him to think and reason logically; as well as a thorough knowledge of the principles and formulas of pure mathematics and their practical applications in the engineering and other scientific professions.

The courses offered in the different classes in this department are as follows:

FRESHMAN CLASS.

401. Plane Trigonometry: *Five hours, first term. Daily* 8-9, 10-11.

402. Advanced Algebra. *Four hours, second and third terms, M., T., Th., F.* 8-9, 10-11.

402a. Agricultural Mathematics. For students in agriculture and agricultural education. *Three hours, entire session. M. W. F.* 11-12.

SOPHOMORE CLASS.

403. Analytic Geometry. *Five hours, first and second terms. Daily* 12-1.

404. Differential Calculus. *Five hours, third term. Daily* 12-1.

JUNIOR CLASS.

405. Differential and Integral Calculus with Applications. *Three hours, entire year, M., W., F.* 11-12.

GRADUATE STUDENTS.

407. Differential Equations. *Two hours, entire year.*

408. Methods of teaching mathematics. The department offers a course designed for teachers of elementary mathematics, or for those who expect to make this their profession. The elementary branches of mathematics will be reviewed and methods of teaching briefly discussed, keeping constantly in view the co-ordination of the lower branches with the higher.

The course will include also a brief *resume* of the history of the elementary subjects, a critical examination of the extant text-books; and finally, an outline of a course of study in advanced mathematics to be pursued by the teacher.

409. Projective Geometry. This course which aims to present the elements of the subject, will be offered to seniors and graduate students in architecture and engineering, and to those properly equipped who wish to pursue the subject of mathematics. *Hours to be arranged, third term.*

TEXT-BOOKS.

Palmer and Leigh's Trigonometry; Fite's College Algebra; Fine and Thompson's Coordinate Geometry; Granville's Calculus; Leib's Problems in the Calculus; Cohen's Differential Equations.

PHYSICS.

PROFESSOR DUNSTAN.
ASSISTANT ANDERSON.
ASSISTANT SMITH.

The complete course in physics extends over two years and it is designed to give as far as possible an adequate and correct idea of the method of physical sciences and to lay the foundation for subsequent advanced work if the student desires to pursue the work further or intends to engage in any of the great engineering professions of which physics forms so important a basis.

Two of the courses offered are given in the sophomore year, one being a lecture course and the other a course in laboratory work. The lectures are illustrated by lecture table experiments and the students are required to work numerous problems and exercises.

SOPHOMORE CLASS.

504. A lecture course in general physics required of all students who are candidates for the degree of Bachelor of Science. For entrance upon this course the student should have had one year's work in elementary physics and a working knowledge of plane trigonometry. The subjects treated are varied from year to year, but they consist in the main of mechanics of rigid bodies, heat, light, sound, electricity, etc. Written exercises will be required each week. *Three hours, entire session. M. W. F.* 10-11.

502. This is a laboratory course which is required of all students in engineering. Non-engineering students may select it as an optional subject. The laboratory experiments are carefully selected and they comprise work in general mensuration

with instruments of precision, heat, light, sound and electricity. The student is required to write a full report of each experiment as he completes it, and the form of compiling data and expressing methods and results is given great weight in determining average grades. The work in the laboratory will be arranged so as to co-ordinate as far as possible with the work treated in the lecture course. Entrance upon the laboratory course requires the student shall have had at least one year of elementary physics. *Two hours, entire session. M. W. F. 2-4.*

SENIOR CLASS.

505. This lecture course is more advanced than the one given to the sophomores and it presupposes a knowledge of the calculus, both differential and integral. The subjects treated are varied from year to year. They are treated thoroughly and rigorously, and the student is encouraged to learn to use the language of mathematics in expressing his ideas. Attention is paid to the history of the development of the various subjects treated. Written exercises are required each week. *Two hours, first and second terms. T. Th.* 11-12.

506. Astronomy. A brief course in descriptive astronomy. *Two hours, third term. T. Th.* 11-12.

GRADUATE STUDENTS.

508. Mechanics. A course in mechanics is offered in which the methods of vector analysis are applied to the derivations of various principles and in the solutions of various problems. The course presupposes a thorough working knowledge of analytical geometry and the calculus. *Two hours, entire session.*

MILITARY SCIENCE AND TACTICS.

MAJOR SPALDING, F. A., PROFESSOR AND COMMANDANT.
CAPTAIN FORTIER, F. A., ASSISTANT COMMANDANT AND ADJUTANT.
CAPTAIN O'CONNOR, F. A., SUPPLY OFFICER.
CAPTAIN CROSBY, F. A., SENIOR INSTRUCTOR OF FIELD ARTILLERY.
CAPTAIN BARRS, INF., SENIOR INSTRUCTOR OF INFANTRY.
CAPTAIN BORLESKE, C. E., SENIOR INSTRUCTOR OF ENGINEERS.
CAPTAIN ORR, F. A., SENIOR INSTRUCTOR OF PHYSICAL TRAINING.
FIRST LIEUTENANT GURREN, INF., ASSISTANT INSTRUCTOR OF INFANTRY.
SECOND LIEUTENANT FLOYD, F. A., ASSISTANT INSTRUCTOR OF FIELD ARTILLERY.

The military department is maintained under the Federal Law of July 2nd, 1862, and the Act of Congress, June 3rd, 1916.

Under the latter law a regiment of the Senior Division of the Reserve Officers' Training Corps is organized under the administration of the War Department. Units in field artillery,

signal corps, engineers, and infantry have been established. A graduate is eligible for commission in the Reserve Corps, U. S. A.

An officer of the Regular Army is detailed as professor of Military Science and Tactics. He is assisted by eight commissioned officers and a number of non-commissioned officers detailed from the army.

The Professor of Military Science and Tactics is, by the appointment of college authorities, the Commandant of Cadets.

Under the Act of June 3rd, 1916, the college is provided with arms and equipment, and a uniform is furnished by the Government for issue, by the College, to each member of the Reserve Officers' Training Corps. The uniform remains the property of the Government, and is for the use of the student only while he remains a member of the Training Corps.

The courses of instruction are graded courses, covering four years. When any member of the Senior Division of the Reserve Officers' Training Corps has completed two academic years in that division, and has been selected for further training by the president of the institution and by its professor of military science and tactics, and has agreed in writing to continue in the Reserve Officers' Training Corps for the remainder of his course in the institution, devoting five hours per week to the military training prescribed by the Secretary of War, and has agreed in writing to pursue the courses in camp training prescribed by the Secretary of War, he may be furnished, at the expense of the United States, with commutation of subsistence at such rate, not exceeding the cost of the garrison ration prescribed for the army, as may be fixed by the Secretary of War, during the remainder of his service in the Reserve Officers' Training Corps. At present this amounts to twelve dollars per month.

The course in camp training prescribed by the Secretary of War consists of two summer camps, not to exceed six weeks in any one year. Transportation to and from the camps and subsistence during such travel and while at the camp is furnished at the expense of the Government, as far as appropriations will permit.

No obligation to perform military service after graduation is incurred by the student.

The object of the military training in the Reserve Officers' Training Corps is to educate college men in the duties of a subaltern officer in the Army. After graduation he is as free as any other citizen.

The entire body of students is organized as a regiment of two battalions and a band. The officers are selected as far as practicable from among the seniors and juniors who are pur-

suing the Advanced Course of the Reserve Officers' Training Corps. Selection is based upon an examination for each grade from corporal to captain inclusive. Moral fitness, as indicated by demerits and standing in studies, will be considered.

A band composed of cadets furnishes appropriate music for parades and other ceremonies and on special occasions. Members of the Reserve Officers' Training Corps are authorized to serve in the band so long as their regular course of instruction is not interfered with.

On the graduation of each class the names of such students as have shown special aptitude for military service will be reported to the Adjutant General of the Army, and to the Adjutant General of their respective states.

On graduation from the military department a student may make application for appointment as an officer in the Officers' Reserve Corps and when he has been appointed in that Corps he may make application for temporary commission as an additional second lieutenant in the Regular Army for a period of six months with full allowances and with pay of $100.00 per month. Both applications are made voluntarily. The graduates of the Reserve Officers' Training Corps are entitled to make application but there is no obligation to do so.

600. The following courses are offered in this department, the student selecting the unit desired:

FIELD ARTILLERY UNIT

Instruction in field artillery will include the following subjects:

Ordnance, guns, ammunition, fuses, fire control instruments, telephones, projectors, gunnery, trajectory, firing data, cannoneers' instruction; military hygiene, battery organization and administration; horses, hippology, shoeing, stable management; trucks and tractors; military law; field artillery topography and orientation; conduct of fire, law of errors, ballistics, range tables, principles of open warfare and trench warfare; minor tactics and map maneuvers; military history and policy of the United States, principles of military strategy, equitation.

SIGNAL CORPS UNIT

Instruction is given in the following subjects:

General physics, general inorganic chemistry; surveying; buzzer and signal lamp practice, electricity and magnetism, electron theory, elementary radio theory, use of telephone, telegraph and radio apparatus; D. C. circuits, use of signal corps apparatus; buzzer and blinker practice; alternating and pulsating currents, oscillating circuits, wave analysis, high frequency effects; construction and theory of telephone, telegraph

and radio apparatus, radio communication; advanced telephone, telegraph and radio engineering, vacuum tubes, long distance telephone circuits, line and cable loading, induction effects, transpositions, phantom circuits, submarine telegraphy, telephone and telegraph repeaters, duplex, quadruplex, and multiplex telegraphy, wireless telephony, multiplex telephony.

ENGINEERS UNIT

The following subjects are offered in military engineering:

Company administration, discipline, customs of the service and military courtesy; theory of the automatic rifle and machine gun; manual of courts-martial and courts-martial proceedings; study of the tables of organization and equipment; topography, military sketching, map reading and reconnaissance; military bridges and river crossings, pontoon equipment and hasty methods of river crossings, explosives, mine charging and demolitions; military roads and railroads, design, location and construction; field fortification, siting of trenches, trench construction, profiles, traces, revetment, drainage, emplacements for special weapons, obstacles, camouflage, standard entrances for cave shelters, materials for cave shelters, overhead cover, gas proofing, dug-outs; duties of engineers in mobile warfare, functions and staff relations of engineers; organization of the engineering corps.

INFANTRY UNIT

The course in infantry will cover:

Infantry drill; target practice; map reading and sketching; care of rifle and equipment; semaphore and wig-wag signalling; practical problems; marches and camps; lectures on first aid; camp sanitation, personal hygiene, minor tactics, military history, Upton's Military Policy of the United States, military correspondence and paperwork; guard duty; army regulations, military law; manual of courts-martial; field service regulations; small arms firing regulations; international law; duties as non-commissioned officers and cadet officers.

PHYSICAL TRAINING

600 a. A minimum of two hours per week in physical training is required of members of all R. O. T. C. units.

The instruction in physical training will cover:

Calisthenics, in which discipline and an erect soldierly body are sought, special corrective exercises being prescribed for those with physical abnormalities which can be remedied; swimming for those who cannot swim, at some time during the course everyone being required to pass the swimming test; boxing, wrestling, fencing and hand-to-hand combat. Besides the regular class work in these exercises the gymnasium will

be open to these activities at all times. Games, group competition and mass athletics will be emphasized, for in these the student will get practical physical training in which he is taught to respond to situations. Certificates of athletic efficiency will be given to all those qualifying in the standard collegiate track and field events. Students trying for one of the college athletic teams are excused from the physical drill period during the time they are out for such team.

COLLEGE OF ENGINEERING, MINES AND ARCHITECTURE

CIVIL ENGINEERING.

PROFESSOR CALLAN.
PROFESSOR HULSE.
ASSISTANT CALDWELL.
ASSISTANT CALHOUN.

FRESHMAN CLASS.

101. Surveying for architects: The work in this course is confined chiefly to the use and manipulation of the tape, level, and transit. The student is given problems similar to those likely to arise in the pursuance of his work as an architect. The study of the methods of leveling, laying out foundations, the plotting of a profile, the making of contours and the use of topographical conventions in drafting will be considered. *Four hours, third term.*

102. Agricultural surveying: Special instruction is given in the use, care, and adjustment of the level and transit with special attention to the needs of agricultural students. Problems of grading, ditching, terracing, planning underdrainage, laying out foundations, together with the necessary knowledge of calculation of areas, description of lands and location of boundaries, are given. *Four hours, second and third terms.*

103. Plane surveying and leveling: Instruction is given in the use, care, and adjustment of instruments; standardizing tapes; methods of retracing old lines; farm surveys; plotting and calculating areas; dividing lands; surveying and mapping existing roads and streets; differential leveling; profile leveling; construction of profiles and establishing grades; cross-section leveling; topographic surveying; mapping; terracing; staking out and giving grades for sewers, ditches, and drains; staking out buildings, etc. *Five hours, second and third terms.*

SOPHOMORE CLASS.

111. Railway surveying: Required of students pursuing course in civil and mining engineering. Instruction will cover preliminary surveys; theory of simple, reversed, and compound curves; transition curves; railway grades; vertical curves; construction surveys; calculation of quantities involved in railway construction. *Two hours recitations and two hours practice, first term. M. W. F. 8-9.*

112. Railway surveying: A course involving additional study of the railroad spirals; problems in location; fixing grades with reference to economy in construction and operation; approximate estimates of quantities from profiles; cross-sectioning and calculating of excavation and embankment; calculation of overhaul; borrow pits; planting, and staking out railway structures; *Two hours recitations and two hours field and office practice, second term. T. Th.* 8-9.

113. Topographic surveying: This course involves the construction, use and adjustment of field and office instruments; topographic and hydrographic survey methods; United States public land surveys and the necessary computations and map work attending the same. *Lectures and recitations two hours, field practice two hours, third term. T. Th.* 8-9.

JUNIOR CLASS.

121. Higher surveying: Required of civil engineering students. Instruction will cover hydrographic surveying; mining surveying; city surveying; geodetic surveying and projection of maps. *Two hours, first term.*

122. Highway Engineering: A course of lectures and recitations covering economic principles involved in road improvement, analysis of resistance to traction; location, grades, and drainage of new roads; relocation and improvement of existing roads; construction of earth, gravel, macadam, concrete, brick, and bituminous roads, with study of properties of the various materials used in road construction, the methods employed in testing them, and the best specifications for constructing roads with the several materials; street plans of cities and towns; width and grades of streets; curbs and gutters; construction of various kinds of street pavements; storm drainage system for cities; and construction of sidewalks. *Three hours, first, second and third terms.*

123. Graphic Statics: A course of lectures and drafting room exercises covering fundamental principles of equilibrium; composition and resolution of forces; the equilibrium polygon; graphical determination of stresses in trusses and framed structures, bending moment and shear in beams; center of gravity of given sections; moments of inertia. *Lectures two hours, drafting four hours, first and second terms.*

124. Theoretical hydraulics: The discussions cover fluid pressures; equilibrium of floating bodies; fundamental principles of hydro-mechanics; methods of measuring the flow of water; Pitot tube; Venturi meter; orifices; tubes; sluices; weirs; nozzles; fire hose; flow in open channels, sewers, conduits, etc.; flow in pipes; dynamic action of flowing water; impulse

wheels; turbines of various types; centrifugal pumps. *Three hours, second term.*

125. Field astronomy and geodesy: The fundamental principles of least squares and their application to the solution of astronomical, physical and engineering phases of the subject of geodesy is taken up. It also includes the principles of adjustment of error and their use in establishing spherical formulae; triangulation and a discussion of the figure of the earth. The work is accompanied by field periods giving application of methods of triangulation, precise leveling, determination of time, latitude, azimuth, and longitude. *Four hours, third term.*

126. Structural Details: The purpose of this course is to acquaint the student with the details of structural steel work, to train him in the neat and accurate execution of drawings, and to teach him in a practical way to solve some of the simpler problems in structural mechanics. *Six hours, third term.*

127. Railroad engineering: The discussions cover the inception, promotion, and organization of railroad projects, organization and construction; the duties of the engineer; alignment and grades; rails and rail fastenings; cross ties; ballast and roadbed; culverts; bridges, and minor structures; turnouts, sidetracks and yards; terminals; elevation of outer rail; signalling; the locomotive and its work; the locomotive and grade problems; railroad expenditures; relation of operating expenses to number of trains; effect of rise and fall, distance, and curvature to train mile costs; railroad location, construction, and betterment surveys. *Three hours, third term.*

128. Highway Engineering Laboratory: The study and testing of various materials used in the construction of roads and pavements. The purpose of the course is to give the student an opportunity of becoming familiar with the physical properties, relative merits, and methods of testing the various materials. *Four hours, third term.*

SENIOR CLASS.

141. Water Supply: This includes study of rainfall, sources of supply, collection and storage of water, and means of purification and distribution. The study of types of purification plants, reservoirs and tanks is also taken up. *Three hours, first term.*

142. Water Supply: A course dealing with the design, maintenance, and construction of city water works. It includes the study of the quantity of water required for city and town supplies, estimation of the yield from drainage basins, stream flow and ground water flow, computations to determine

the necessary storage to insure a given supply, the proportioning of stand pipes, conduits, and distribution systems and other features relating to water supply engineering. *Two hours, second term.*

143. Sewerage: This course deals mainly with works for the sewerage of cities and towns and for the treatment and disposal of sewage. It includes the general characteristics of sewage, the different processes of disposal, the general methods of analysis of sewage, and the construction and operation of sewage plants. *Three hours, third term.*

144. Theory of Structures: The purpose of this course is to teach the fundamental principles underlying the design of bridges, roofs, and other framed structures of metal and timber. The discussions cover determination of outer and inner forces acting on the structure; concentrated live load systems; design of beams, plate girders, simple trusses, bridge trusses with secondary web systems, lateral and portal bracing, transverse bents, viaduct towers, cantilever bridges, three-hinged arches. *Three hours, first and second terms.*

145. Advanced Stress Analysis: A continuation of Theory of Structures from the previous terms consisting of the application of the principles of mechanics to the determination of the stresses in various forms of bridges and roof trusses. *Three hours, third term.*

146. Structural Engineering: Involves the treatment of the units used in structural design such as beams and columns, rivets, pins, shafting, I-beam and plate girder designs, and the relation of these to railroad bridge and building construction. *Four hours, third term.*

147. Structural Steel Design: The aims of this course are the relations of the theory of structures to engineering practice. The student prepares designs and working drawings of such structures as a plate girder railway bridge, a steel roof truss, a reinforced concrete structure and a steel highway bridge. Careful, systematic, practical habits in computation are especially emphasized. *Six hours, first term.*

148. Advanced Structural Steel Design: A continuation of Structural Steel Design of first term. It treats of the computation and design of structures by analytical and by graphical methods. The structures involved represent roof and bridge trusses of various forms, trestles and others of similar character. The object is to train the student in the application of the principles of mechanics to the design of the more common engineering structures, the problems selected being adapted to the individual needs of the student. *Four hours, second term.*

151. Concrete and masonry construction: Discussions cover mathematical theories underlying the design of reinforced concrete beams, columns, slabs and arches; cements, limes and mortars; methods of mixing and placing plain and reinforced concrete; classification and properties of building stones; definition and construction of various classes of stone masonry; manufacture of brick; brick work; stone and brick arches; retaining walls; piers and abutments; shallow foundations; coffer dams; crib foundations; pile foundations; pneumatic caissons; the freezing processes; cylinder piers. *Three hours, second term.*

152. Reinforced Concrete Design—Advanced: The theoretical and practical principles involved in the design of reinforced concrete structures are given in this course. Such problems as those used in the construction of buildings, retaining walls, and bridges are given. *Three hours, third term.*

154. Engineering Law and Valuation: Under this heading the student studies the fundamental development of law; the function of the state in general and American system of federal and state jurisdiction in particular. Attention is given to the fundamental basis of laws; contracts, agency, property rights, corporation and municipal laws, and the principles of finance and financial operations. *Two hours, second term.*

155. Building Construction: A course involving a study of the construction of buildings including the discussion of the various materials and their preparation; the classes and methods of framing, in steel, wood and concrete; and a short study of the principles of reinforced concrete as applied to building construction. *Three hours, first term.*

156. Thesis: Each candidate for a degree in civil engineering is required to prepare a thesis upon some engineering subject which he may select. It must be the record of original investigation of some engineering subject or an original design of some engineering structure or project. The applicant for a degree shall file a written announcement of his subject with the professor of civil engineering not later than October 1st of his senior year; and the thesis shall be completed and submitted for approval not later than May 1st. During the first term the candidate shall devote not less than four hours a week to reading and collecting data for his thesis; during the second term he shall devote not less than nine hours a week and during the third term until May 1st not less than three hours a week to work on the thesis. He shall submit on Monday morning of each week a written statement of the time he has devoted to thesis work during the preceding week.

The student is also required to prepare and hand in one report or paper during first term and one during second term on subject of thesis or some allied subject approved by the professor.

SUMMER CAMP AND SCHOOL OF SURVEYING

105. Practical work in plane and higher surveying supplementing the instruction given in courses 102 and 103: This work is given at the summer camp immediately after commencement, between freshman and sophomore years. The purpose of this course is to give the student uninterrupted practice in the solution of practical problems in surveying similar to those which he will meet early in his career as an engineer; and the course is in line with the policy of the institute to combine theory and practice in all its branches of technical instruction. Students in this course are required to make notes of all the work done by the party to which he is assigned and to compute and plot all surveys made by his party. The parties will be made as small as the conditions of the work will permit so as to give each student the greatest possible amount of practice with the instruments. This course is required of all students who are candidates for graduation in civil or mining engineering, and requires *forty-eight hours per week for four weeks.*

110. Practical work in railway, highway, and hydrographic surveying: This course is also given in the summer camp, and is required of all students who are candidates for graduation in civil or mining engineering, and will be taken between sophomore and junior years. The work includes the preliminary location and construction, surveys for a short line railroad, (about 2 miles), with maps, profiles, and estimates for same; all surveys, maps, profiles and estimates for a short line of highway, (about two miles); surveys for a dam and lake formed thereby; also gauging of stream flow with current meter. The time required for this course is *four weeks, forty-eight hours per week.*

The Institute furnishes tents, cots, camp stools, and all equipment of mess tents. The student will furnish his own bedding, soap and towels. A charge of $18.00, payable in advance, will be made for each course and will be applied to payment of the expense of the camp.

GRADUATE STUDENTS.

180. Graduate engineering course: This course requires three hours a week to be devoted to recitations and five hours a week to practical work in field or drafting room, throughout the session. The subjects may be varied to fit the needs of the

students taking the course, but will be chosen from the following: Reinforced concrete; bridge design; sewerage and water supply; specifications and contracts.

122. Thesis: Graduate students applying for the degree of civil engineer will be required to prepare and present a thesis. the regulations governing thesis work being the same as those prescribed for seniors.

ELECTRICAL ENGINEERING.

PROFESSOR DUNSTAN.

PROFESSOR HILL.

LABORATORY ASSISTANT BRUNSON.

JUNIOR CLASS.

201. Elementary theory of electricity and magnetism: A detailed study of the fundamental phenomena and laws of the subject. *Three hours, first term. T. W. Th.* 8-9.

202. Direct current machinery: Lectures and recitations on the principles of design, construction, installation, and operation of direct current generators and motors. This course treats in detail of the selection of machinery for given conditions, performances guarantees, acceptance tests for heating, regulation, efficiences, etc., parallel running troubles and remedies and repairs. A large number of carefully selected problems are assigned for solution and every effort is made to have the course cover not only the fundamental principles but also the broader engineering problems connected with the choice and use of this class of machinery. *Three hours, second term. T. W. Th.* 9-10.

203. Central station appliances and distribution for lighting and power service by direct currents: This course treats in detail of switch boards and appliances, calculation of circuits of various kinds, arc and incandescent lighting, metering, systems of charging for service, economics of generating plants. *Three hours, third term. T. W. Th.* 9-10.

204. Elementary theory of electricity and magnetism: For non-electrical engineering students. This course is similar to course 201, though not so detailed in treatment. *Two hours, first and second terms. T. Th.* 9-10.

204a. The construction and operation of both direct and alternating current machines; tests for efficiency, regulation and heating; the generation and distribution of electric power. In this course, it is intended to cover the application of electricity to the operation of machinery. For non-electrical stu-

dents. *Two hours, third term. T. Th.* 9-10.

205. Electrical measurements and tests: For students in electrical engineering and mechanical engineering. The course consists of lectures and recitations upon the measurements of current, voltage, resistance, capacities, magnetic measurements, stray power, brake tests, heat runs, and related subjects. *One hour, entire session. M.* 9-10.

206. Laboratory work: For students in electrical engineering and mechanical engineering. The course consists of galvanometer work, resistance measurements of various kinds, magnetic measurements and various tests. *Four hours, first term.*

207. Laboratory work: For students in electrical engineering and mechanical engineering. The second term is devoted to the operation of direct current motors and dynamos, characteristics of direct current machinery, methods of adjusting, compounding, etc. *Four hours, second term.*

208. Laboratory work: For students in electrical engineering and mechanical engineering. Efficiency tests, location of troubles on machine and line, switch boards and appliances and general experience in the operation of a direct current station, are given. *Four hours, third term.*

209. Wiring and illumination: This course is intended to give a working knowledge of the laws of illumination and to train students in the writing of wiring specifications. The work in wiring will cover the laws for the calculation of wires for lighting and power circuits, costs of wiring, and insurance rules governing the installation of wires. Problems will be worked in class covering the design of lighting schemes for special buildings. *Two hours, third term.*

SENIOR CLASS.

210. Theory of alternating currents: Lectures, recitations and problems upon the phenomena of alternating current circuits, inductances, etc. The course is introductory to the subject of alternating current machinery, and in order to take it, students must have a fair working knowledge of differential and integral calculus and vector algebra. *Five hours, first term. M. T. W. Th. F.* 8-9.

211. Alternating current machinery: Lectures and recitations upon alternating current generators, calculation of alternator voltage, regulation by various methods, parallel running, transformers, induction motors, single phase commutator motors, synchronous motors, rotaries, etc.; harmonic analysis of wave forms, the expression of the same in Fourier series and calculation of the current produced in various circuits.

The course is somewhat advanced and in order to take it satisfactorily students must have a good knowledge of the mathematical theory of alternating currents. *Five hours, second term, M. T. W. Th. F.* 8-9.

212. Transmission lines: Lectures and recitations upon line inductance and capacity, the application of hyperbolic functions to the calculation of the regulation of long transmission lines, effect of harmonies in E. M. F. waves, surges, etc. Stresses in conductors, line construction and related topics. *Five hours, third term. M. T. W. Th. F.* 8-9.

213. Laboratory work: Operation of alternating current machinery, determination of data for calculation of alternator regulation, direct determination of regulation, efficiency tests, transformer connections, transformer testing for efficiency and regulation, induction motor testing, circle diagram. Brake tests, single phase induction motors, synchronous motors, V-curves, rotaries, synchronizing, etc. The work during the third term consists chiefly in the determination of data for the student's thesis. *Four hours, entire session.*

214. Electric railway engineering: A detailed study of the subject of street and interurban electric railway service covering train resistance, grades, curves, line and track, car and power plant equipment, both direct and alternating currents, sub-station, single phase equipment, and related topics.

The course consists of recitations and lectures with constant reference to current numbers of various technical journals. *Two hours per week, one term. T. Th.* 10-11.

215. Telephone engineering: History and development of telephone types, designs of telephone parts, sub-station equipment, magneto and common battery switch boards, exchange equipment, telephone power plants, over head and under ground circuits, protectors, coin collectors and meters, party lines, private branch exchanges, first and intercommunicating systems, trunking, and toll boards. *Two hours, first and second terms. T. Th.* 10-11.

216. Telephone laboratory: Details of telephone construction, association of parts, assembly of switch board parts, storage batteries, tests for location of faults in cables and lines, capacity and insulation tests, details of common battery and magneto switch boards, trunking schemes, etc. *Two hours, first and second terms. T. Th.* 2-4.

217. Electrical engineering: For senior mechanical engineering students. Direct current motors and generators, street railways, circuits, alternating currents, and alternating current machinery. This course is less detailed than the courses for electrical engineering students, but aims to cover the field in

a more generalized manner. *Three hours, first term. M. W. F.* 10-11.

218. Laboratory work for seniors in mechanical engineering. This course is given in connection with course 217, and gives practice in the operation and testing of electrical machinery of various kinds. *Four hours, first term.*

220. Power plant: For students taking the special course in applied electricity. The purpose is to familiarize the student with the operation of engines, pumps, generators, motors, switch board appliances and boilers. All students in this course are expected to work under the power house engineer. *Four hours, entire session.*

WIRELESS TELEGRAPHY

221. In response to a considerable demand it has been decided to offer a special course in wireless telegraphy. The practice work in this subject will be under the charge of a licensed wireless operator. Every effort will be made to offer to students opportunities to become familiar with the setting up, installation, and testing of wireless apparatus, as well as to become expert in sending and receiving.

Wireless messages are constantly being picked up with the wireless station, these messages coming from ships at sea, and from various wireless stations along the Atlantic Coast.

The requirements for entrance to this course will be similar to those for entrance upon the two-year course in applied electricity.

The course of study is the same as that of the first year in the two-year course in applied electricity, with the exception that four hours of wireless telegraph study and practice will be substituted for four hours power house work.

MECHANICAL ENGINEERING.

PROFESSOR WILMORE
ASSISTANT PROFESSOR HIXON
ASSISTANT PROFESSOR STOKES
ASSISTANT HOWARD
LABORATORY ASSISTANT EDWARDS
LABORATORY ASSISTANT FULLAN
LABORATORY ASSISTANT PRUETT
LABORATORY ASSISTANT MCDONALD
LABORATORY ASSISTANT SCREWS

The following courses are offered in this department:

FRESHMAN CLASS.

Students who have credit for a course satisfactorily completed in an accredited high school will be assigned to other work.

351. Shop work—carpentry: The lessons include instruction in the nature and use of tools; instruction and practice in shop drawing; elementary work with the plane, saw, chisel; the construction of different kinds of joints, timber splices, cross joints, mortise and tenon, mitre and frame work, and dove tail work, comprising different joints used in cabinet work, and examples of framing roof trusses. Students who have had previous experience in the use of tools or who show a special proficiency, are given work of an advanced character. *Six hours, one term.*

352. Shop work—wood turning and pattern making: The instruction includes the nature and use of the lathe and tools. The lessons include plain turning, caliper work, simple and compound curves, chuck work, hollow, and spherical turning. Whole and split patterns in wood for solid and cored castings with core boxes where required. Attention is called to characteristics of different timbers, and the allowances for shrinkage and draft. *Four hours, one term.*

353. Shop work—forging: For the year 1919-20 course No. 361 will be given to freshman students. *Four hours, one term.*

302. Auto mechanics—theory: Required of students taking first year work in auto mechanics. This work consists of a general study of the automobile mechanism, including the frame, springs, wheels, bearings, transmission, differential, and motor, with a limited amount of instruction on ignition systems; also care and maintenance of the machinery of the car. *Three hours, entire session.*

354. Auto mechanics—laboratory: Required of students taking first year work in auto mechanics. Practice in overhauling and adjusting bearings, aligning wheels, and general repair of cars and trucks. *Fourteen hours, entire session.*

355. Oxy-acetylene welding: A course in welding all common metals and the cutting of wrought iron and steel. Special attention will be given to pre-heating work and taking care of expansion and contraction. Instruction will be given in the general characteristics of the different metals. *Two hours, entire session.*

SOPHOMORE CLASS.

312. Applied mechanics: Required of students in engineering courses. The fundamental laws of mechanical science are studied while special attention is given to the practical application of these principles to engineering work. *Three hours, second and third terms. M. W. F. 8-9.*

361. Shop work—forging: A text-book is used from which is learned something of the characteristics of the metals and the best methods of working them. The lessons are so arranged as to make the student familiar with the handling of the tools and the successive steps in working metals by hand. Exercises in drawing, upsetting and bending, cutting, punching, and welding by various methods, are given, together with a course in steel forging, including hardening, tempering, and case hardening. *Four hours, first term.*

362. Shop work—foundry: Required of all students except those taking agriculture. The work for the most part consists of small articles, such as light machine parts and stock pieces used for the exercise work in the machine shop. A sufficient variety is introduced for the student to acquire a good general knowledge of the usual methods and appliances used in light foundry work. Most of the work is green sand and two part flasks, but some core work and more complicated work is introduced to illustrate the processes, as well as to furnish the castings for the advanced work in the machine shop. Instruction is given in operating the cupola, and from time to time lectures and recitations are held on the metallurgy of the metals used in the industrial arts. *Four hours, second term, and five hours third term.*

313. Auto mechanics—theory. Required of students taking second year work in auto mechanics. This work consists of a thorough course in starting, lighting and ignition systems, battery and tire construction, garage tools and other equipment; also most approved methods of keeping accounts and job sheets. Instruction given in tractor and truck work. *Three hours, entire session.*

363. Auto mechanics—laboratory. Required of students taking second year work in auto mechanics. Practice is given in fitting bearings, overhauling electric systems, building batteries, locating general troubles, and repairing tubes and casings. *Fourteen hours, entire session.*

364. Oxy-acetylene welding: A continuation of Course 355 above. *Two hours, entire session.*

JUNIOR CLASS.

321. Practical mechanics: Required of students who take machine shop work. The instruction consists of recitations and lectures on general machine shop work. The construction, use, and limitation of the various machine tools, the forms of cutting tools and methods of grinding them, and the form and use of jigs and gauges, are studied, together with instruction in machine management, and time and cost keeping. *One hour, entire session. Th.* 10-11.

322. Strength of materials: Required of students in the engineering courses. The properties and characteristics of the materials of engineering construction are studied, and the development of the methods of calculating their strength under different conditions of stress is explained. Many problems involving the strength of beams, girders, columns, and shafts are worked out. *Three hours, first term. M. W. Th.* 8-9.

323. Engines and boilers: Required of juniors in civil engineering, architecture, architectural engineering, freshmen who register for any engineering course, and of the first year students in the course in applied electricity. An elementary dscriptive course in which attention is called to the different types of engines and boilers,and methods of setting, valve gears and valve setting, piping systems and auxiliary apparatus for power plants. *Three hours, first term. M. W. F.* 10-11.

324. Gas engines: Required of seniors in chemical engineering, juniors in civil engineering, architectural engineering, and the first year students in the two-year course in applied electricity. A descriptive course in gas, gasoline and oil engines; different types, different cycles, carburetion, ignition, troubles and remedies. *Three hours, second term. M. W. F.* 10-11.

325. Transmission of power: Required of juniors in civil engineering, architectural engineering and of the first year students in the two-year course in applied electricity. Shafting, pulleys, bearings, belting, gearing, aligning of shafting, calculation of pulley and gear sizes, power of belts, lubrication and lubricating systems. *Three hours, third term. M. W. F.* 10-11.

371. Shop work. Required of students in the courses of

mechanical engineering and electrical engineering. This work is divided into two parts:

(a) A course in chipping and filing: The lessons comprise work on cast iron and wrought iron, and consist in chipping to line on flat and curved surfaces, key seating, filing and finishing to line, surface filing, slotting, pin and screw filing, and surface finishing with scraper.

(b) A course in machine work: The materials worked on include cast iron, wrought iron, steel and brass. Exercises are given in turning to various diameters and lengths, taper turning, facing with chuck and face plate, drilling in the lathe and drill press, reaming, boring,screw cutting in lathe and with taps and dies. Practice is given in working the planer, shaper, and milling machine. In the last part of the year some work in tool making is given, such as making taps, reamers, and milling cutters. Some sort of construction or repair work for the department is always on the shop floor and students who are well advanced in this work have opportunity to gain additional practice and experience by assisting with this. *Six hours, entire session.*

374. Shop work. Required of students in the course of mining engineering and elective for juniors in the course of civil engineering. The work includes course (a) and (b) as described in course 371 just preceding, except the amount of work repuired is less in proportion to the time consumed.

All shop work is done from blue prints and blackboard sketches. For the preliminary exercise work, special instruction sheets are prepared and given out to each student with stock for the exercises. These sheets explain in detail each step in the process of producing the exercise, and are intended to supplement individual instruction of the instructor. In the construction work it is the purpose to select some simple machine and build two or more of them on the interchangeable system. Jigs and templates are built to accomplish this result as far as possible. A system of timekeeping is in force in the shop. At the end of the week each student makes out his time card, describing the work he has done during the week, and giving the number of hours spent on each job. *Four hours, entire session.*

377. Laboratory: Required of juniors in the course of mechanical engineering and electrical engineering. The work will consist in the adjustment and calibration of instruments used in engineering work, and the adjustment and operation of gas, gasoline and steam engines. Tests will be made to determine the efficiency of mechanics such as hoists, jack screws, gearing, belts and other transmission devices, together

with some work in valve setting and power measurements of steam engine. Complete and accurate written reports of each experiment are required. *Two hours, third term.*

378. Laboratory: Required of second year students in the two-year course in applied electricity. The work will consist of the cablibration of instruments, indicator work, valve setting, fuel and furnace gas analysis, and lubricant testing. *Three hours, second term.*

SENIOR CLASS.

331. Thermodynamics: Required of students in the courses of mechanical engineering and electrical engineering. This course includes a study of the fundamental principles underlying the transformation of heat into work. The so-called perfect gases are first studied, and later the applications to the various vapors used in commercial work. The cycles and efficiencies of steam engines, internal combustion engines, hot air engines, air compressors, and refrigerating machines are studied. Instruction is given in indicator practice and the interpretation and working up of indicator diagrams. *Five hours, first term. M. T. W. Th. F.* 12-1.

332. Power plant engineering: Required of students in the courses of mechanical engineering and electrical engineering. A study is made of the practical applications of power plant machinery. The different elements are considered and the efficiencies of different combinations discussed. Problems are worked involving the designing of plants for a specific service, including estimates of cost and operating expense. Extensive files of manufacturers' catalogs are kept and technical papers and magazines are freely consulted. *Five hours, second and third terms. M. T. W. Th. F.* 12-1.

333. Hydraulics: Required of seniors in mechanical engineering and elective for seniors in electrical engineering. The elementary principles of mechanics of fluids are studied. This is followed by a discussion of the theory of hydraulic turbines and pumps, including their design, installation, and operation. *Three hours, second term. M. T. W. Th. F.* 10-11.

334. Heating and ventilating: The different methods of heating and ventilating buildings are treated. A study is made of the relative efficiency of hot water, steam and warm air as mediums for heating different kinds of buildings, and special attention is given to the design and operations of healthful heating systems for residences. *Two hours, first term. T. Th.* 8-9.

336. Refrigeration. Required of students in the course in mechanical engineering. The theory of the refrigeration pro-

cess is studied together with its applications to commercial plants. The advantages of the various mediums, as ammonia, carbon dioxide and others are discussed, as well as methods of insulation and plant arrangement. *Two hours, second and third terms. T. Th.* 8-9.

381. Laboratory: Required of students in mechanical engineering and electrical engineering. This work includes fuel analysis and heat determination, flue gas analysis and the study of combustion, oil and lubricant testing, and valve setting and indicator analysis. *Four hours, first term.*

382. Laboratory: Required of students in mechanical engineering and civil engineering and optional in electrical engineering. The course includes work in testing the strength of materials, as iron, steel, wood, and cement in tension, compression, and transverse loading, and the calibration of weirs, nozzles, and meters, a study of the flow of water in pipes, and the testing of hydraulic motors and pumps. *Four hours, second term.*

383. Laboratory: Required of students in mechanical engineering and electrical engineering. The work includes tests of engines, boilers, pumps, gas and gasoline engines, complete power plants, and when opportunity offers, tests of commercial power plants. *Two hours, third term.*

384. Thesis: Each applicant for a degree is required to prepare and hand in a thesis. This thesis may consist of a design, a study of some engineering problem involving a series of tests, or a study involving the collection and analysis of data and material on some engineering subject with a statement of definite conclusions derived therefrom. Preliminary work shall begin with the first term and weekly reports of progress made. The thesis proper shall be handed in to the professor in charge not later than May 1st. The student shall prepare and hand in two papers or reports on some portion of his thesis or some allied subject, approved by the professor, one during the first term and one during the second term. Credit as laboratory work. *Two hours, first and second terms, four hours, third term.*

GRADUATE STUDENTS.

391. Laboratory: This course is arranged to suit the work being carried by the student, and the hours are adjusted to suit their available time.

341. Steam turbines: The theory, design and structural details of the different types of modern steam turbines are studied, and complete designs are worked out. *Three hours, first term. M. W. F.* 8-9.

342. Power plant design and economics: The economics of power plant design, the relation of the different elements of a power plant to each other, and the conditions of maximum efficiency are studied. Plants are designed to give the highest efficiency under specified conditions, and actual plants are studied to discover, if possible, sources of additional economy in operation. *Three hours, third term. M. W. F. 8-9.*

343. Works management: Methods of cost keeping, systems of organizing and paying labor, depreciation of plant, accounting and business organization are studied. Many problems are solved, including the layout of buildings and machinery for manufacturing plants. *Three hours, third term. M. W. F. 8-9.*

SPECIAL STUDENTS.

Special students who have the necessary preparation may be admitted to any of the classes in this department. Students who, for any reason, are not able to remain in college to complete the full course, but who wish some training in drawing and shop practice, are permitted to become irregular students. This plan may be advantageous to young men who contemplate entering the mechanical trades either preceding or following the apprenticeship period. In many cases this work has been accepted as equivalent to a part of the apprenticeship period and the time of the latter shortened thereby. The drawing and mathematics are invaluable tools in any of the trades, and work in the different shops enables the apprentice to become familiar with the principles of the trades allied to his own.

MINING ENGINEERING AND GEOLOGY.

PROFESSOR ————

JUNIOR CLASS.

401. Mine surveying: All general surveying as given by the civil engineering department previous to the junior year is required for this course. The work covers general surveying methods as applied to conditions prevailing at mining properties, both underground and at the surface. The student is required to work out practical problems that he will be likely to meet in actual practice. *Five hours, first half of first term. Daily 9-10.*

Text-book: Durham's Mine Surveying.

402. Coal mining: For those who have taken course 401 and its prerequisites. This course includes the following:

Examination of coal properties; drifts, slopes and shafts; methods of working; plans of mines; coal-cutting machinery; trackwork, haulage, mine ventilation; coal washing; coking in

beehive ovens, by-product coking. *Five hours, from first mid-term to end of session. Daily* 9-10.

403. Junior drafting: The course includes freehand lettering, mapping, detailed drawings to scale of various structures relating to mines, design of mine cars, design of ventilated fans. *Five hours, entire session. W.* 2-4, *F.* 2-5.

404. Summer course: The summer field work will deal with graphite mining and milling, mica and pyrite mining in Clay County, marble quarrying and milling at Sylacauga; brown ore mining in Shelby County; coal mining, washing and coking, iron ore mining and mine rescue work at Birmingham. Surveys and reports will be required. *Four weeks, immediately following commencement, between junior and senior years.*

SENIOR CLASS.

411. Mining: Modes of occurence and origin of the various ores and economically valuable mineral deposits. Prospecting and examination of mineral properties, including boring by different methods. Methods of opening up mineral deposits, breaking ground, supporting excavations, developing and working coal and metalliferous deposits, haulage, hoisting, drainage, ventilation, lighting and provisions for ascent and descent. The last term is devoted to the design of mine structures such as head frames (timber and steel), coal tipples, mine buildings. *Three hours, entire session. M. W. F.* 12-1.

412. Drafting. Map work consisting of plotting of notes taken on summer trip between junior and senior years; drafting accompanying design of mine structures; original work in connection with thesis. *Four hours, entire session. W. F.* 2-4.

413. Laboratory course: For seniors in mining engineering and chemistry and metallurgy. The work includes crushing, sampling, concentration, stampmilling, amalgamation, and cyaniding. *Three hours, entire session. S.* 10-1.

Text-books: Coal and Metal Miner's Pocket Book, and International Text Books.

421. Graduate course: This course is offered to those who desire to pursue the subjects related to mining beyond the scope to which the two years' course limits them. The work will be arranged to meet the requirements of those desiring to take it.

GEOLOGY.

JUNIOR CLASS.

431. Crystallography: For students in the courses in civil engineering, mining engineering, and chemistry and metallurgy. A thorough study is made of the crystal systems with the aid of a full set of crystal models and natural crystals. Special

emphasis is laid upon the more practical features which will be of service in further mineralogical work. *Four hours, first mid-term. T. Th.* 2-4.

Text-book: Bayley's Elementary Crystallography.

432. Mineralogy: For juniors in the courses of civil engineering, mining engineering, and chemistry and metallurgy. The course consists of a thorough study of a large number of minerals from the standpoint of their physical characteristics. A good type collection of minerals is kept in the laboratory for comparison. An effort is made to have the students become familiar with economically important ores and non-metallic minerals, and the common rock-forming minerals so that he can identify them at sight by the application of a few simple tests. *Four hours, one and one-half terms. Tu. Th.* 2-4.

Text-book: Butler's Handbook of Minerals.

433. Lithology: For those who have satisfactorily completed course 432. This deals with the combination of minerals in the make-up of rocks, and aims to bring out structure, texture, crystallization and mineralogical composition sufficiently to enable the student to recognize the commoner rocks in the sedimentary, igneous and metamorphic classes. *Four hours, third term. Tu. Th.* 2-4.

Text-book: Kemp's Handbook of Rocks.

434. Agricultural Geology: For juniors in agriculture. This course deals with the operation and results of geological processes as follows: weathering and rock disintegration, work of winds, work of underground waters, rivers, river deposits, river valley cycle, glaciers and glaciation, lakes and swamps, shore lines, plains and plateaus, movements of ocean waters, characteristics of the atmosphere, light and warmth in the atmosphere, rain and other forms of water, winds, storms and climate. *Four hours, second term. M. Tu. Th. F.* 10-11.

Text-book: Tarr & Martin's College Physiography.

435. General geology: See course 441.

436. Engineering geology: The rock forming minerals; the general characters, mode of occurence and origin of rocks; structural features and metamorphism of rocks; rock-weathering; surface waters; underground waters; landslides and their effects, wave action and shore currents; lakes, their origin, and relation to engineering work; glacial deposits, their origin, structure and economic bearing; building stone; limes, cement and plaster; clay and clay products; coals; petroleum, natural gas and other hydrocarbons; road foundations and road materials; ore deposits. Required of juniors in architectural engineering, special students in mining engineering, and elective

for seniors in civil engineering. *Two hours, entire session. Tu. Th.* 12-1.

SENIOR CLASS.

441. General geology. For juniors in the courses of mining engineering, and chemistry and metallurgy, and for seniors in the courses of civil engineering and general course. The course covers dynamic geology, structural geology, geomorphology, and historical geology in the order named. The lectures and recitations are supplemented by laboratory instruction and geological excursions. *Two hours, entire session. Tu. Th.* 8-9.

Text-book: Chamberlain and Salisbury's College Geology.

442. Economic geology, non-metallic minerals: For seniors in the courses in mining engineering, and chemistry and metallurgy. The course is presented by lectures and recitations and includes the study of modes of occurrence, distribution, origin and uses of coal, petroleum, limestone, salines, gypsums, fertilizers, abrasives, minor non-metallic minerals and mineral waters. *Two hours, first term. M. W.* 8-9.

Text-book: Reiss' Economic Geology of the United States. (Revised.)

443. Economic geology, metallic minerals: For students who have taken course 442. The work includes a study of the ores of iron, copper, lead, zinc, gold, silver, silver-lead, aluminum, manganese, mercury, and the minor metals. *Two hours, third term. M. W.* 8-9.

Text-book: Reiss' Economic Geology of the United States. (Revised.)

444. Methods of teaching physical geography: Especially adapted to the secondary schools of the State. In the course in general geology will be found much that is especially applicable to physical geography. It takes up a study of subterranean and surface agencies both as to their destructive and constructive processes. The results of these processes are then taken up in a study of the topography of the surface of the earth and under the following heads: The geographic cycle; land sculpture; topography as determined by faults and joints; adjustment of rivers; sea coasts; mountain ranges. Students desiring extra work in this subject may arrange for a three-hour course. *Two hours a week, first and second terms.*

MACHINE DESIGN AND MECHANICAL DRAWING.

PROFESSOR FULLAN.
ASSISTANT PROFESSOR THOMAS.
INSTRUCTOR ELIZONDO.

Th following courses are offered in this department:

FRESHMAN CLASS.

601. Mechanical drawing: This course in drawing is of general educational value, and is required of students in all courses. The object of the course is to train the mind through the eye and hand with the applications of geometry to drawing. Accuracy, neatness, and the correct use and the care of instruments, are given special attention.

The work is given in the following order:

(1) Freehand drawing and freehand lettering.

(2) Linear drawing—geometrical construction.

(3) Orthographic projection, sections and intersections.

(4) Development of surfaces and the construction of models.

(5) Isometric, cavalier, and dimetric projections.

(6) Study of working drawings, making tracings and blue prints.

(7) During the third term, in lieu of (5) above, a course in agricultural drafting is given freshman students in agriculture, and is arranged for the purpose of assisting them to a knowledge of the principles of mechanical drawing and their application to the farm. The course consists of drawings in the following lines of work:

(a) Farm maps: Topographical drawing; topographical conventions; maps and plots; layout for farm buildings, outhouses and grounds.

(b) Building construction: Plan, elevation, and section; details, framing joints; building materials, layout of plumbing and water supply on the farm; plans for barns, hayracks and roof construction; and framing for houses, etc.

(c) Concrete forms: Simple forms; steps and stair forms; wall forms; layout of forms for silo building; watering troughs and fence posts.

(8) During the last half of the year, in lieu of (5) and (6), a course in hand work correlated with drawing is offered to young women. The course is arranged with a view of giving training in vocational and industrial lines and consists of a short course in the elements of industrial education as follows:

(a) Paper cutting and folding: The construction of boxes, baskets and booklets.

(b) Basketry: Several baskets of native materials from pine needles and corn husks.

(c) Print block and stencils: The design of print blocks, and the cutting of stencils for decoration:

(d) Wood whittling: The making of articles of use from thin wood with simple tools.

(e) Clay modelling: Elementary clay modelling with tools made by the student and including the treatment of geometrical, botanical, animal and commercial forms; reproduction of the designs in basketry is included in the course.

(f) Art metal work: Articles of copper, brass and iron are wrought by the student with a few simple tools.

Freehand drawing of geometrical subjects is given early in the course. It provides training of a certain definite nature by developing close observation and accuracy in representing the forms of models used in the work. Freehand lettering of standard practice is strongly emphasized throughout the entire course. The construction and application of Roman and Gothic capitals and small letters to working drawings and the arrangement and design of formal titles are treated in this division.

Under the head of linear drawing, special attention is given to the proper use and care of instruments. The most useful of the geometrical constructions are worked out in pencil and afterwards carefully inked.

Orthographic projection with sections and intersections is given in the beginning of the second term, and is a prerequisite to course 602 in descriptive geometry. Developments of surfaces are made, and paper models of the objects are constructed from these developments. The construction of these models has the property of more firmly fixing the principles involved in the preceding division in the mind of the student and is given special attention.

In the third term pictorial representation of objects are given by means of single-view projections, isometric, cavalier, and dimetric. The paper models made by the pupil are now used for subjects. A number of working drawings of familiar objects are required in the last part of the year. Penciled drawings to scale, tracings and blue prints of these objects are made by each member of the class. *Four hours, entire session. M. W.* 11-1 *or* 2-4; *Tu. Th.* 11-1; *F.* 2-6.

SOPHOMORE CLASS

602. Descriptive geometry: Required of all students preparing for engineering and architectural courses. The work is given by lectures, written recitations and drafting room instruction. In this course theory and practice are combined

with the purpose of training the students in the graphical expression of ideas. The instruction includes problems relating to the point, straight line, and plane; tangents and normals; to cylindrical, conical, and warped surfaces, to sections, intersections, and developments; to shades, shadows, and prespective; and is intended to develop in the mind of the student a clear concept of magnitudes in space. The lectures and written recitations are to impart principles and to permit the instructor to meet the entire class, and, with diagrams and models, supplement the work of the text. The drawings, two hours per week, consists of plates of problems, which are selected from the text-book and other sources. *Four hours, entire session. Lectures, Th.* 11-12; *Drawing, M. T. W.* 2-4.

603. Engineering drawing: For chemical engineering students of the Sophomore class. The work is given by means of lectures and drafting pratice. The student is required to make drawings of apparatus, machinery, and general accessories of chemical industrial plants. Supplementing the work of chemical engineering, the following features are studied by means of drawings:

(a) Floor plans and elevations of factory buildings, showing machinery in place;

(b) Pipe lines with fittings for steam, water, and gas;

(c) The details of grinding, pulverizing, and mixing machinery;

(d) Machinery for sugar manufacture, grinding mills, separators, vacuum kettles, and centrifugals;

(e) Cross sections of retorts, condensers, and pumps;

(f) Details of machinery for extraction of oil from cotton seed and peanuts;

(g) Drawings of boiler settings and accessories of a power house.

Four hours, entire session. Tuesday and Friday, 8-10.

604. Drafting for auto mechanics: The course is required of second-year students in auto mechanics. The work is given by means of drawings and is arranged to familarize the student with the mechanical construction of motor cars and trucks. Course 601, freshman mechanical drawing is a prerequisite. Working drawings are made of the important features of motor cars, supplementing the courses in auto mechanics. The work is arranged as follows:

(a) Plans, elevations, and cross sections of the chassis;

(b) Drawings of engines, with cross sections and details;

(c) Ignition systems, with complete wiring diagrams;

(d) Cross sections of transmissions, differentials, and clutches;

(e) Drawings of ball and roller bearings used in motor cars;

(f) Design of sheet metal parts in motor car construction;

(g) Design of bodies for motor trucks for specific purposes.

Four hours, entire session, Tu. F. 8-10.

605. Motion picture projection. The course in motion picture projection is given to sophomores who wish to prepare themselves for the motion picture business, and consists of lectures and practice with the apparatus used. The work includes training in the business features of the motion picture industry which is the third largest industry in the business world today, and the handling of motion pictures for educational purposes. The study of projection machines of all makes and related equipment including the installation of outfits both permanent and temporary is given important consideration. The elements of the course as given by lectures and laboratory practice are as follows:

(a) Elementary electricity: Wiring of booths, etc.;

(b) The study of arc lamps for projection, the use of incandescent lamps for portable outfits;

(c) Connecting up electrical apparatus for regulating rheostats, transformers, rectifiers, compensarcs, motor-generators, batteries, etc.;

(d) The elementary principles of the optics of moving picture apparatus for the adjustment of lens systems;

(e) The preparing of projection screens for permanent use and also for portable purposes;

(f) The study of projecting machines— mechanism, repairing, adjustment and inspecting;

(g) Construction of standard booths. Fire Underwriters Insurance requirements for motion picture booths;

(h) The care of films, repairing, and handling; the making and using of slides for announcing purposes.

Five hours, third term. Tu. Th. 9-10, *F.* 2-5.

JUNIOR CLASS.

606. Kinematics of machinery: Required in the courses of electrical engineering and mechanical engineering. Under this head machines are analyzed and their elementary combinations of mechanism are studied. Motions and velocities, instantaneous centers, kinematic chains, velocity diagrams, parallel and straight line motion mechanisms, are given early in this course. The communication by means of gear wheels, belts, cams, screws, and link work, and the different ways of obtain-

ing definite velocity ratios and definite changes of velocities in machine parts are investigated. Problems designing quick motions, trains of mechanisms for various purposes, and gear trains are treated. Illustrated lectures with the lantern, showing practical applications of mechanism to the design of machinery, are given at intervals throughout the course. *Three hours, second and third terms. M. W. Th.* 8-9.

607. Graphic statics of mechanism: Required in courses of electrical engineering and mechanical engineering. The lectures provide a brief course in graphic statics, graphical statics of mechanism, and in the design of structures, including roof trusses for factory buildings, crane frames, girders, and water-tank towers. The stresses in machines and structures are investigated by graphical methods, which are carefully checked in the beginning by analytical proofs. This course includes the solution by graphical methods of such problems, before which analytical methods are comparatively impotent, as those which involve the friction losses in machines, and of the determination of the efficiency of mechanisms. The graphical method is also applied to dynamics by problems in the balancing of engine crankshafts working under specified conditions. The use of manufacturers' handbooks and drafting-room practice are given special attention. *Two hours, first term. W.* 10-11, *F.* 8-9.

608. Machine design: Required in the courses of electrical engineering and mechanical engineering. Instruction is given in the design of fastenings and machine parts, and in the general methods of arranging views. This course includes the designs of cams, gear tooth outlines, quick-return motions, and link-work combinations, which supplements course 604, in kinematics. Scale drawings of simple machines are made from dimensioned sketches, which each student makes for himself from an actual machine or model. Tracings and blue prints are made from these drawings. All the instruction is intended to familiarize the students with modern drafting-room methods.

608a. Inventive design: At intervals during the session problems are proposed to the class which involve both invention and design. The problems are given in a serial order and are progressive; they are selected with a view of developing the inventive capacity of the student. The inventions are submitted as the work of the student alone, and must contain complete drawings and full specifications in form corresponding to that required by the United States Patent Office. The designs are graded on the basis of the originality, adherence to specifications, clearness of drawings, accuracy, and neatness. The early problems consist of the design of simple

mechanical devices requiring only well-known principles; in the later inventions are involved and bring into use the theoretical principles pursued in electricity, mechanics, and physics. *Three hours, first term; five hours, second and third terms. Tu. and F.* 8-9; *W.* 10-11.

SENIOR CLASS.

609. Machine design—lectures: Required in the courses of mechanical engineering and electrical engineering. These lectures are intended to cover the general instructions to the students, such as the selection of materials for different machine parts, the rules for proportion of parts to secure strength, symmetry, and cheapness of manufacture, and the best methods of making, recording and preserving the calculations incidental to the design of a complete machine. Much valuable engineering data of current nature in the form of notes are given as a supplement to the text-book. Illustrated lantern lectures on subjects related to the course are given at intervals during the year. *One hour, first term; two hours, second and third terms. Th. S.* 9-10.

610. Machine design—drawing: Required in the course in mechanical engineering. This is a continuation of the junior course in machine design. Original problems involving the design of complete machines to work under specified conditions are assigned, and the student develops the idea in the form of sketches. These are submitted to the instructor for criticism and are afterwards embodied in complete detail and assembly drawings. The calculations of each design are written up neatly and filed with the drawings. Special attention is given to the strength of the parts, to the harmonious and symmetrical appearance of the complete machine, and to the details as regards practical manufacture. *Six hours, entire session. F.* 2-5, *S.* 10-1.

611. Machine design—drawing: Repuired in the course in electrical engineering. The work given and the methods pursued are similar to those described in course 608, just preceding, but the amount of work required is reduced in proportion to the amount of time given to the subject. *Three hours, entire session. S.* 10-1.

612. Engineering writing: This course is arranged for senior students in the engineering branches and is required in courses of civil, electrical and mechanical engineering. Its purpose is to familiarize the student with the different forms of technical writing, and to provide exercise with written work; to pursue study of trade catalogs, technical magazines, scientific papers, and technical nomenclature. Course in composition

(Ac. 102a) is a prerequisite for this course. A loose-leaf note book, containing the written work, is submitted by the student each week, and is the basis for the evaluation of the term grade. The lectures and laboratory work are arranged as follows:

(1) Lectures: complete notes required.

(2) Graphic methods of presenting facts: study of charts, curves and diagrams.

(3) Engraving processes: photo-engraving; wax-engraving; prepare drawings for copy for illustration.

(4) Photograhphic illustration: use of camera; selection of views for cuts, use of "skeleton" and "x-ray" photo-illustrations.

(5) Study of trade catalogs: preparation of a simple trade catalog for manufactured article.

(6) Study of current engineering writings: patent office reports; periodicals, magazines and scientific papers.

(7) Visit to power manufacturing plant: preparing complete article from notes, illustrated with photographs, charts, diagrams and drawings. *Three hours, first term.*

613. Engineering contracts and specifications: For seniors in the engineering courses. The work is given in lectures and recitations upon engineering specifications and the elements of the laws of contracts. Exercises in the writing of specifications for machinery and engineering work are prepared by the student in note-book form. Each student is assigned an engineering project for which full specifications and contract in legal and approved form is required. *Two hours, third term. Tu. Th.* 10-11.

614. Home industries—industrial art (vocational): This course is a continuation of the work given in 601 (8), without which it cannot be pursued. The work is arranged for the needs of students of the sophomore and junior classes who intend to teach this branch, men and women, but is particularly suited to the latter—teachers and homemakers. The subject matter is varied and adapted to the rural school as well as the high school. Home Industries, which includes the making of articles of use for the home, is given important consideration. A large part of the course consists of training in vocational lines that lead to the industries. The work is given by lectures and laboratory practice—one lecture and six hours practice per week. The divisions of the course are as follows:

(a) Paper work: Advanced work with paper and cardboard. Design and construction of booklets, place cards, candy baskets; bookbinding; sewing, pasting and finishing books.

(b) Basketry: Work in reed, raffia, and native materials —pine needles and corn husks. Tea mats, sewing baskets,

fruit baskets, sandwich trays, jardiniers, electroliers.

(c) Stencil cutting and design: Preparing the stencil board; design of stencils for decoration of booklets, textiles, and walls; compound stencils for the production of posters, etc.

(d) Wood-work: Advanced work in wood with the knife and coping saw; use of carpenter's tools; gluing, nailing, finishing and decorating.

(e) Clay modelling and plaster casting: Making of modelling tools; advanced work in clay and plasticine; reproduction of models in plaster, finishing the plaster casts.

(f) Art metal work: Design and construction of articles in iron, copper, brass, and silver; soldering and brazing; enameling; finishing metal work—bronzing and oxydizing.

(g) Weaving: Construction of primitive loom and the weaving of rugs and pillow covers, etc.; design and weaving of pattern work on the Swedish loom; dyeing of materials; decorating plain woven work with stencil patterns.

(h) Refinishing furniture: Removing old stain and varnish; use of stain and varnish; preparing homemade stain—Old English, weathered and mission; enamel and ivory finishes; use of stencils in furniture decoration.

(i) Pattern drafting: Drafting of patterns for making clothing with the application of the principles of mechanical drawing; making stuffed form for testing the drafted patterns.

GRADUATE STUDENTS

615. The work offered during the post-graduate year is an extension of that of the senior year. More of the theory of the subject is taught, more intricate machines are involved, and problems are given involving the design of a series of machines for manufacturing some specific article. The problems arising in the design of a line of machines of different sizes are also taken up, including the applications of graphical methods and the use of factors of enlargement in reduction. Special attention is given to the effect of current practice on the proportion of machine parts.

A research study into the Patent Office records or some machine or device is offered in this course. This feature is to develop the inventive capacity of the student, and is given special attention.

Suitable text and reference books are used.

616. Methods of teaching drawing and descriptive geometry: A course in the methods of teaching drawing and descriptive geometry is given to those who wish to prepare for teaching these branches. This course includes advanced work in shape

of problems, supplemented by frequent conferences with the instructor, a full bibliography of works on the subjects, and an extended course in reading.

Those who desire to avail themselves of an opportunity to practice the teaching of these subjects may be permitted to attend the meetings of the large classes in elementary work for the purpose of observing methods of teaching.

Those who show sufficient preparation may be allowed to assist in tutoring delinquent students and those who enter conditioned.

Special attention is given to the subject of drawing as taught in high school work.

617. Thesis: A thesis taken in this department may be a study of some machine or its parts; research in records of subjects relating to the work of the department; or, a study of current practice in the design of some specific machine. It is required to be written in parts, one of which it to be presented at the end of each term. The complete thesis is due on May 1st.

TEXT-BOOKS.

Mechanical Drawing, Isometric Drawing, Smith's Essentials of Descriptive Geometry, French's Engineering Drawing, Keown's Mechanism, Spooner's Machine Design, Smith and Marx's Machine Design, Cathcart and Chaffee's Graphics, Halsey's Handbook Machine Design, Frost's Good Engineering Literature, Watt's Composition of Technical Papers, Brinton's Graphic Methods for Presenting Facts. Kirby's Elements of Specification Writing.

ARCHITECTURE.

PROFESSOR BIGGIN.

ASSISTANT PROFESSOR ————————

The department of architecture was established in June, 1907. Four-year courses are offered in architecture and architectural engineering, both leading to the degree of Bachelor of Science. The freshman and sophomore years of these courses are respectively alike, affording the student ample opportunity for investigation before making a choice. The schedules conform to the "standard minima" of the Association of Collegiate Schools of Architecture. A two-year special course in architecture is offered for the benefit of mature draftsmen, and a certificate given on completion.

The first requirement in architecture is the ability to design, from the artistic side, that the structure may please the eye, and from the practical one, that it may suit its purpose. Next in importance are the engineering studies necessary for proper construction. Finally the student must acquire the fundamentals of that broad cultural training everywhere recognized as indispensable to an architect's success.

Architectural design is taught on the basis of problems requiring a month or more for solution, and developed by the student under constant personal criticism. These are accompanied by short sketch problems to promote quickness of thought and execution, with no criticism until after they are turned in for judgment. Freehand drawing in some form runs throughout the entire course in architecture. History of architecture is taught by lantern lectures, accompanied by library research work and sketching; for students in architecture this is followed by short courses in the history of painting and sculpture.

A general course is given in building construction and superintendence, with the preparation of working drawings, details, and specifications. This is supplemented by special work in the various engineering departments of the college, along such lines as heating and ventilation, wiring and illumination, reinforced concrete and steel frame construction. Of foreign languages, French is the most useful to the architect and is required.

Students who at the close of the sophomore year elect architectural engineering, devote less of the remaining period than those in architecture to the subjects of design and history. They are also not required to take water color painting, life class, clay modeling, or a foreign language. The time thus

saved is occupied in engineering studies and advanced construction.

During the summer months all students in the department are required to spend one month or more in the offices of practicing architects, or follow a prescribed course in library research work and sketching; examinations are held on this in the fall, and college credit is given.

The following courses are offered in this department:

FRESHMAN CLASS.

11. Freehand drawing: Work in pencil, pen and ink, and wash from casts of architectural ornament, architectural fragments and parts of the figure. Freehand Perspective. Out-of-door sketching. *Four hours, entire session. T. Th.* 2-4.

13. Descriptive geometry: The fundamental problems of descriptive geometry are studied and applied to the solution of problems in architecture. Prerequisite course: Solid geometry. *Four hours, lectures and drafting, first term. T. Th.* 10-12.

15. Shades and shadows: Delineation of architectural shades and shadows. Prerequisite course: Arch 13. *Four hours, lectures and drafting, second term. T. Th.* 10-12.

19. Elements of architecture: The classic orders of architecture and elementary studies in composition, with drawings rendered in line and in India ink. The second term must be accompanied by Arch. 15. *Six hours, lectures, library research and drafting, entire session. M. W. F.* 2-4.

SOPHOMORE CLASS.

21. History of architecture: Origin and development of historical styles of architecture from the earliest times to the fall of the Roman Empire; the Moslem irruption; Romanesque and Gothic architecture. Typical examples are studied in detail and for this purpose the lantern is in constant use. Stress is laid on the evolution of a style from changes in structural forms, political and religious conditions and national character. Prerequisite course: Ancient and medieval history; students who have not offered this for entrance must pass an examination on it before the sophomore year. *Two hours, lectures, library research and sketching, entire session. T. Th.* 9-10.

25. Charcoal drawing: Work in charcoal, pen and ink, and wash from casts of architectural subjects, antique sculpture and from life. Out-of-door sketching. Prerequisite course: Arch. 11, or its equivalent. *Four hours, entire session. M. F.* 2-4.

27. Perspective: Theory and practice of architectural per-

spective, and methods of rendering. Prerequisite course: Arch. 13. *Four hours, lectures and drafting, third term. T. Th.* 10-12.

28. Architectural composition: Principles of composition and the development of motives and details. Indication. Prerequisite course: Arch. 19, or its equivalent. *Three hours, lectures, library research and sketching, first term. M. W. F.* 11-12.

29. Architectural design: Problems in design, composition, planning, motives, details and rendering. Prerequisite course: Arch. 19, or its equivalent. *Nine hours, lectures, library research and drafting, entire session. T. W. Th.* 2-4, *S,* 10-1.

JUNIOR CLASS.

31. History of architecture: Continuation of the technical and historical study of architecture; the Renaissance and modern times. During the second term particular attention is given to architectural development in the United States. Prerequisite course: Arch. 21. *Three hours, lectures, library research and sketching, first and second terms. M. W. F.* 9-10.

32. Historic ornament: An analysis and study in detail of the main historic lines of decoration, with a brief outline study of the development of mosaic, ceramics, stained glass, ornamental metal work, textile fabrics, furniture and other minor arts. Prerequisite course: Arch, 31. *Three hours, lectures, library research and sketching, third term. M. W. F.* 9-10.

33. Building construction—masonry: Foundations, footings and walls; limes, cements and mortars; stones and stone cutting; stone and brick masonry; terra cotta; concrete; plastering; fire resisting construction. Specifications. *Three hours, first term, M. W. F.* 10-11.

34. Building construction—carpentry: Properties and uses of various woods; seasoning and preservation of timber; methods of framing; exterior and interior finish; slow-burning and mill construction; sheet metal work; elevators; painting and glazing; hardware. Specifications. *Three hours, second term. M. W. F.* 10-11.

35. Plumbing and drainage: General sanitation; water supply, filtration and softening; pumping and storage; fire lines, supply, vent and waste systems; plumbing fixtures; sewage disposal. *Three hours, third term. M. W. F.* 10-11.

37. Water color painting: Work from models and still life. Conventional and sketch rendering of architectural subjects. Out-of-door sketching. Prerequisite course: Arch. 25. *Four hours, entire session. S.* 9-1.

38. Working drawings: Under such limitations as a client would be likely to impose, working drawings, details of construction, specifications and estimates are prepared for a building designed in course 39. *Fifteen hours, lectures and drafting, third term. T. Th.* 8-10, 11-1 *and* 2-4, *and three other hours.*

39. Architectural design: Continuation of problems in design, composition and planning. The planning of domestic buildings. Prerequisite course: Arch. 29. *Fifteen hours, library research and drafting, first and second terms. T. Th.* 8-10, 11-1 *and* 2-4, *and three other hours.*

SENIOR CLASS.

42. History of painting: A brief survey of the development of painting with special reference to mural work. Lectures and assigned readings. *One hour, first term. S.* 9-10.

43. History of sculpture: An outline study of the development of sculpture and its relation to architectural design. Lectures and assigned readings. *One hour, second term. S.* 9-10.

44. Professional practice: Relations of the architect, owner and contractor; professional ethics; contracts and laws of business; office methods and other matters of practical value. Lectures, with assigned readings, reports and discussions. One *hour, third term. S.* 9-10.

46. Life class: Figure work from life, in color or black and white. Out-of-door sketching. Prerequisite course: Arch. 37. *Three hours, entire session. T.* 10-1.

47. Clay modelling: Work from architectural casts and from sketches. Prerequisite course: Arch. 32. *Three hours, entire session. Th.* 10-1.

48. Seminar: Reports and discussions on current architectural literature. Investigation of assigned topics. Lectures on matters of value and interest outside of regular courses. *One hour, third term. W.* 2-3.

49. Architectural design: Advanced problems in design, composition and planning. During the third term a single major problem is studied and worked up in detail as a thesis. Prerequisite course, except for special students: Arch 39. *Eighteen hours, library research and drafting, entire session. M. W. F.* 9-11, *T. Th.* 2-4, *S.* 10-1, *and five other hours.*

COLLEGE OF AGRICULTURAL SCIENCES

CHEMISTRY.

PROFESSOR ROSS.
PROFESSOR HARE.
PROFESSOR BRAGG.
PROFESSOR MILLER.
ASSISTANT PROFESSOR POWELL.
INSTRUCTOR MARTIN.
ASSISTANT ALLEN.
ASSISTANT STEPHENS.

Instruction in this department embraces the following courses of lectures, systematic laboratory work being given in connection with each course for the practice of chemical analysis and chemical research:

FRESHMAN CLASS.

101. Course in general chemistry: This consists of a series of lectures including a discussion of the fundamental principles in chemical philosophy in conection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of organic chemistry. In this course the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form. *Three hours, entire session. M. W. F.* 8-9.

TEXT AND REFERENCE BOOKS.

Noyes, Newth, Holleman, Smith, Mellor, Chemical Journals.

SOPHOMORE CLASS.

103 (b). Organic chemistry: This course, though somewhat more condensed, is similar to 103 (a), with the exception that the latter portion of the course is devoted to a special study of fats, carbohydrates and proteins with reference to their functions in the life processes of plants and animals. *Three hours, first and second terms. M. W. F.* 8-9.

105. Agricultural chemistry: This course consists of lectures on chemistry in its application to agriculture and includes a thorough discussion of the origin, composition, and classification of soils, the composition and growth of plants, the sources of plant food and how obtained, the improvement of soils, the manufacture and use of fertilizers, the chemical prin-

ciples involved in the rotation of crops, the feeding of live stock, and the various operations carried on by the intelligent and successful agriculturist. *Four hours, third term. M. T. W. F.* 8-9.

TEXT AND REFERENCE BOOKS.

Snyder's Soils and Fertilizers, Snyder's Chemistry of Plant and Animal Life, Johnson and Cameron's Elements of Agricultural Chemistry, Stoddard's Agricultural Chemistry, Storer's Agriculture in Relation to Chemistry, scientific journals, reports of the United States Department of Agriculture, and the bulletins and reports of the various home and foreign agricultural departments and stations.

JUNIOR CLASS.

102. Industrial chemistry: Lectures, including discussion in detail of the processes and chemical principles involved in the most important applications of chemistry, in the arts and manufactures, to the preparation of materials for food and drink, for clothing, shelter, illumination, cleansing, purifying, writing, printing, etc. These lectures are amply illustrated by means of suitable specimens of raw materials and manufactured products, together with models and diagrams. *Three hours, first and second terms. M. W. F.* 8-9. *Four hours, third term. M. W. F. Th.* 8-9.

TEXT AND REFERENCE BOOKS.

Thorp's Industrial Chemistry, Sadtler's Industrial Organic Chemistry, Blount and Bloxom's Chemistry for Engineers and Manufacturers.

103 (a). Course in organic chemistry: Instruction in this subject embraces lectures and recitations upon the leading facts and principles of the chemistry of the carbon compounds, and includes a study of the methods of preparation of the more important compounds, their properties, and their structural and stereo-chemical relations. *Three hours, first and second terms; Two hours, third term. T. Th.* 9-10.

TEXT AND REFERENCE BOOKS.

Remsen's Organic Chemistry, Cohen's Organic Chemistry, Gatterman's Practical Methods of Organic Chemistry.

SENIOR CLASS.

104. Course in Metallurgy: This consists of lectures and recitations upon the more important metals, such as iron and steel, copper, lead, tin, silver, gold, mercury, zinc, etc. It includes a discussion of the physical and chemical properties of the metals and their alloys, the ores and their treatment, and the processes by which the metals are obtained from the ores,

with chemical reactions involved. *Three hours, first term, M. W. F.* 10-11; *second term, M. W. F.* 8-9.

104b. Metallurgy: An advanced course in iron and steel. Lectures and recitations upon the special methods of manufacturing iron and its several alloys, or steels. Required of seniors in mining engineering, chemical engineering, chemistry and metallurgy, and mechanical engineering. *Three hours, third term. M. W. F.* 10-11.

106. Engineering chemistry: A course given during the senior year, special attention being devoted to the study of the construction and equipment of the chemical plants devoted to the manufacture of the more important chemical products. Excursions to various chemical and metallurgical plants during the course of the year will aid in familiarizing the student with the practical details of the operation of the leading industries. *Two hours, second and third terms. M. F.* 12-1.

107. Course in theoretical chemistry: The more modern phases of chemical theory are given special attention. *Two hours, first term. M. F.* 12-1.

108. Course in physical chemistry: Lectures and recitations. *Two hours, entire session. T. Th.* 11-12.

109. Methods of teaching chemistry in the secondary schools: In this course, students who have had the necessary preliminary work in chemistry will be afforded the opportunity of taking laboratory practice in experimental chemistry for lecture purposes and for the purpose of the practical study of methods of handling classes in experimental laboratory work. Advanced students can also take the course in the history of chemistry which is provided in the senior year of the course of chemistry and metallurgy. *Hours to be arranged.*

111. Course in advanced inorganic chemistry: *Two hours per week, entire session. M. W.* 9-10.

LABORATORIES.

110. Courses of practical work in the laboratory are carried on in connection with all courses of lectures.

The laboratories, which are open from 9 A. M. to 5 P. M. during six days in the week are amply supplied with everything necessary for instructions in chemical manipulation in qualitative and quantitative analysis, and in the methods of prosecuting chemical research. Unusual facilities are offered to students who wish to devote their time to the special study of practical chemistry.

Each student on entering the chemical laboratory is furnished with a work table, a set of re-agent bottles and the common

agents and apparatus used in the qualitative and quantita-
e analysis.
\t the close of the session he will be credited with such
icles as may be returned in good order, the value of those
ich have been injured or destroyed will be deducted from
contingent fee.

SOPHOMORE CLASS.

a) All students in the courses in agriculture, chemistry and
tallurgy, chemical engineering, and mining engineering are
uired to take practical laboratory work. Students in the
ırse in pharmacy, upon application, may be allowed to take
; work. The work of this course embraces the preparation of
umber of non-metallic elements, and some of the more im-
tant inorganic compounds, the identification of metals by
ans of the blowpipe, and the qualitative separation and
ection of the bases and acids. *Six hours, entire session.*
st section, M. 11-1, *Th.* 8-10, *F.* 9:30-11:30; *second section, W. F.* 2-4; *one additional hour for lecture and class work.*

JUNIOR CLASS.

10 (b). A course in quantitative analysis, embracing gravi-
ric and volumetric analysis, and including the analysis of
estones, iron ores, etc. *Nine hours, entire session. M. W. F.*
Three hours to be scheduled.

SENIOR CLASS.

c.) A course in quantitative analysis, including analysis
ertilizers, soils, coals, ores, iron and steel, sugars and sugar
ducts, feed stuffs, mineral waters, fluxes, slags, cinders,
ıace gases, etc. The nature of the work is varied somewhat
uit the individual object of the student. *Nine hours, entire ion. M. W. F.* 2-4. *Three hours to be scheduled.*
i). The laboratory course provided for students in the
·se in mining engineering embraces work in quantitative
ysis, including assaying. In the latter portion of the
·se, special attention is given to metallurgical analysis and
fire assay of ores of gold, silver, and other important
ıls. *Nine hours, entire session. M. W. F.* 2-4.
). In the course in pharmacy and veterinary science,
·uction in urine analysis and in toxicology and toxical
ysis is given during the last term. *Six hours. M. W. F.*

). In the senior year, a laboratory course in organic
nistry is provided for students in the course in chemical
neering throughout the entire year, and for students in the
se in chemistry and metallurgy during the third term.
· *hours, entire session. T. Th.* 2-4.

The short course includes systematic laboratory work in organic preparations, while the longer course embraces work in organic analysis, as well as in preparations.

112. In addition to the laboratory work above described, it is designed to give a short course of laboratory work in industrial chemistry, in which the student will apply upon a small scale the principles involved in the processes of some of the more important chemical industries.

Students completing the above courses are afforded ample facilities for advanced work along special lines.

AGRONOMY.

PROFESSOR DUGGAR.
PROFESSOR FUNCHESS.

The regular agricultural course extends through four years, and is intended to prepare those who complete it to become successful farmers, farm superintendents, and agricultural scientists in the various divisions of agricultural work in the U. S. Department of Agriculture, and the numerous agricultural colleges and experiment stations. The studies in the regular agricultural courses are so arranged that a student may obtain a thorough education while acquiring the technical training necessary to the most successful management of farming operations and of agricultural investigation or teaching. No foreign language is required for graduation in this course, but those who expect to engage in scientific work of the U. S. Department of Agriculture or of the agricultural colleges and experiment stations, have the opportunity to study Latin, French and German, or any one or two of these.

For the benefit of those who are unable to spend four years at college, and who desire to prepare for the management of a farm, a short two-year course in agriculture is provided. In this the student devotes his entire time to those studies having a direct bearing on his future occupation.

The following courses of instruction are offered.

FRESHMAN CLASS.

202. Corn: Lectures, recitations, and field practice on the cultivation, judging and improvement of corn. The student assists in harvesting certain experiments, becomes acquainted with a number of the best varieties, learns to select the best ears and the best plants, and notes the results of experiments in improving or breeding corn. *Two hours, lectures; two hours, laboratory, first term. T. Th.* 11-12, *W.* 2-4.

SOPHOMORE CLASS.

203. Farm accounts: Lectures and practice. *Two hours, rst term.*

204. The small grains: Lectures, recitations, and field ractice on wheat, oats, rye and barley. These plants are 'eated both as grain crops and as forage plants. *Two hours, :ctures; two hours, laboratory, third term. T. Th.* 11-12, *W.* -4.

JUNIOR CLASS.

205. Leguminous forage plants and soil improvement: ectures, recitations, and field practice on this most important roup of forage plants, including cowpeas, soybeans, alfalfa, ıe clovers, vetches, etc. These plants are treated both with eference to their use as forage plants and as a means of im-roving the soil. *Two hours, lectures, two hours, laboratory, hird term. W. F.* 10-11, *T.* 2-4.

SENIOR CLASS.

206. Cotton: Lectures, recitations, and field practice in lentifying and comparing a large number of varieties growing n the experiment station farm; judging individual cotton lants, and lectures on the cultivation, fertilization, and im-rovement of cotton. The collection of varieties growing on xperiment station farm usually numbers betwen fifty and ne hundred varieties, and all of these are available for stu-lent's use. *Two hours, lectures, two hours, laboratory, first erm. T. Th.* 12-1, *S.* 9-11.

207. Cotton classing: This course of laboratory work con-ists of practice in classing the commercial grades of cotton y comparing great numbers of samples procured from the ffices of cotton buyers, with a nearly complete set of type amples owned by this department. A part of this practice vill be under the supervision of experienced cotton buyers. *lours by appointment.*

207a. Special crops: A course of lectures dealing with ugar cane, tobacco, rice, broom-corn, and other southern crops ıot treated in other courses. *Two hours, second term. T. Th.* 12-1.

208. Farm management: A course of lectures and practice lealing largely with rotation of crops, cost of producing differ-ıt crops, systems of farming, selection of a farm, and plans or the best use of the farm or soil in which each student is nost interested. This course is intended to give the student ın opportunity to bring to bear on practical problems the nformation acquired from preceding courses of instructions n agriculture and related subjects. *Two hours, lectures; two*

hours, laboratory, third term. T. Th. 12-1, *S.* 9-11.

209. Investigation as a basis for a thesis: After a month spent in special reading under the direction of the professor of agronomy with a view to the selection of a subject for a thesis, the student will perform some agricultural experiment in crop production, soil treatment, or in testing farm machinery. Suitable facilities for such thesis work are provided in the fields and agricultural laboratories. In addition to conducting an original experiment, the student will review the literature of agriculture to ascertain the results of similar or related experiments. It is expected that the results of some of these experiments will be worthy of publication. *Entire session.*

211. Soils and soils laboratory: Recitations intended to acquaint the student with the physical properties of soils, with the principal soils of Alabama, and especially those of the region from which each student comes. Instruction in this course will be given with a view to fitting a student to engage in the soil survey work of the U. S. Department of Agriculture, as well as to prepare him for the rational management of the soil of the farm. *Five hours, entire session. T. Th.* 9-10, *Th.* 2-5.

212. Methods of teaching agriculture: This is a course of lectures and laboratory and field exercises intended to meet the needs of those who expect to teach agriculture or nature study in the common schools and agriculture in the high schools. Special attention is given to the selection of material for illustrating the principles of agriculture, and practice will be given in conducting a number of simple demonstrations. Frequent excursions are made in the fields. *Two hours, third term.*

Post graduate courses in crop production, soils, and farm management are offered. The exact nature of the subject will depend upon the special requirements of the student.

Students taking a four-year course in agriculture receive instruction in various branches of animal husbandry and horticulture, as well as in the natural sciences bearing on agriculture.

SPECIAL STUDENTS.

213. Soils and fertilizers: This is a lecture course in which the student is made familiar with the origin, chemical and physical properties, and management of the soil. A discussion of the relation of rotations, fertilizers, and lime to the maintenance of soil fertility is given. *Two hours, first and second terms. Tu. Th.* 8-9.

AGRICULTURAL ENGINEERING.

PROFESSOR ————

JUNIOR CLASS

520. Drainage, terracing, and farm structures: While these topics are the subjects of lectures and recitations, chief stress is laid on giving the student practice in locating terraces, laying out ditches and planning systems of tile drainage. Such time as is available is given to the study and planning of barns, fences, gates, etc. *Two hours lectures, two hours laboratory, first term.*

SENIOR CLASS.

521. Farm engines: This course consists of lectures and laboratory practice with farm engines; application of power to farm operations, such as feed grinding, silage cutting, pumping, spraying, wood saws, etc.; transmission of power, including belt lacing, rope splicing, etc. Especial attention is given to finding and remedying engine troubles. *Two hours, second term.*

522. Farm machinery: It is the aim of this course to acquaint the student with improved farm machinery; adjustment, construction, repair, and operation of preparation machinery, seeding machinery, cultivators, haying machinery, etc. *Two hours, second term.*

BOTANY.

PROFESSOR GARDNER.
ASSOCIATE PROFESSOR STRATTON
LABORATORY ASSISTANT STURKIE
LABORATORY ASSISTANT TISDALE

The courses offered by the Department of Botany are designed to meet the needs of three different groups of students: Those desiring to secure some general acquaintance with the elementary facts and principles of biological science as a necessary part of a cultural education, those desiring a thorough and detailed presentation of certain aspects of the subjects as a prerequisite to entrance upon the study of medicine or of some phase of applied botany, such as horticulture or agronomy, those seeking the fullest possible collegiate training in the subject as a preparation for teaching or for advanced work in the subject.

SOPHOMORE CLASS.

301. General botany: This course is planned to meet the needs of all three classes of students just named. It is de-

signed to furnish a broad general introduction to the fundamental principles of biological science, supplying the foundation upon which subsequent courses are built while at the same time giving to the non-specialist a good acquaintance with those biological principles which should form a part of his equipment for life. The course is not rigidly morphological, but attempts to supply an introduction to the evolutionary history, the fundamental physiological processes, the life relations and classification of plants. Required of all sophomores in the college of agriculture and two-year pharmacy students. A laboratory fee of $3.00 is charged in this course to cover the cost of materials and laboratory outlines. *Two hours lectures, and four hours laboratory, entire session.*

302. Poisonous and medicinal plants: The object of this course is to train students in the classification and recognition of poisonous and medicinal plants. The students will be taught to recognize medicinal plants in the field as well as in the laboratory. The department herbarium will be used freely to illustrate important poisonous plants. The lectures will deal with the families represented by important poisonous and medicinal plants. Required of sophomores in veterinary and pharmacy departments and of two-year pharmacy students. *Two hours lectures, and four hours laboratory, third term.*

JUNIOR CLASS

303. Agricultural bacteriology: This course is designed to supply to students contemplating specialization in animal husbandry or in some phase of applied botany, as horticulture, forestry, or agronomy, such an introduction to the principles of bacteriology as may furnish a basis for study of the special problems to be encountered in these lines of work. After a brief introductory discussion of the general morphology and physiology of the bacteria, the biological relations of the specialized groups will be taken up. The bacteriology of fermentation and putrefaction, the nitrogen-fixing and sulphur bacteria, the application of bacterially produced processes in the industries, and the more important problems of soil bacteriology will be dealt with in such details as time permits. The point of view throughout the course is distinctly economic. The forms pathogenic for man and animals will not be considered. The prerequisites for this course are Agr. 110a and Agr. 301. A laboratory fee of $2.00 is charged in this course to cover the cost of materials and laboratory outlines. *Lectures, two hours; laboratory four hours, first term. M. and W.* 9-10, 11-1.

304. Plant physiology: This course deals with the funda-

nental processes involved in plant response and plant behavor as related to crop production. The topics covered in the ectures and laboratory are the following: The cell as the hysiological unit; the principles of absorption; rise of sap and ranspiration; water requirements of economic plants; raw naterials; the carbon relations of plants; the relations to nitroen; the products of metabolism; digestion and translocation; espiration, aeration and fermentation; growth reproduction; he relation of plants to temperature, light and toxic agents; ariation and heredity. The prerequisites for this course are gr. 110a and 301. A laboratory fee of $3.00 is charged in this ourse to cover the cost of materials and laboratory outlines. *ectures, two hours; laboratory, four hours; second and third erms. M. and W.* 9-10, 11-1.

307. Range and pasture plants: A study of the poisonous nd forage plants of pasture and range. The object of this ourse is to familiarize the student with the important plants f this region which are beneficial or injurious to horses, catle, hogs and sheep. Growth, habits, general aspects, distriution and ecological relations will also receive consideration. equired of Seniors specializing in Animal Husbandry, and uniors in Veterinary Medicine. *Two hours lectures, four ours laboratory or field work, first term.*

SENIOR CLASS

305. Plant pathology: In the winter, pathological techique, the nature, processes, relationships and classification vill be studied. Such topics as saprophytism, symbiosis, arasitism and mycorhiza will receive consideration. A colection of fungi will be required. The spring term will be deoted to a detailed study of plant diseases, of fungi in general nd disease producing fungi in particular, their causes, effects nd remedies. Students will be expected to become familiar vith the literature of plant pathology and to make reports on ssigned topics. They will be taught to recognize plant diseases *n the field,* and to estimate the amount of damage. Prereqisites for this course are Agr. 301, 303, and 304. A laboratory ee of $3.00 is charged to cover cost of materials and laboratory heets. *Two hours lecture, four hours laboratory, second and hird terms.*

306. Plant histology: A short one-term course intended to amiliarize the students with histological technique as a founation for advanced work in botany, and for those who wish o teach botany. Prerequisite is Agr. 301. *Two hours lecures, four hours laboratory, second or third term.*

308. Advanced Plant Physiology: This course deals with

phases of plant physiology for which there was not sufficient time in course 304, with the recognition and estimation of the principal groups of food materials, with methods and technique of physiological chemistry of plant tissues and the recognition of constituents of plants by microchemical methods. Particular attention will be given to the physiological phases of drying and canning of fruits and vegetables. *Lectures, two hours; laboratory, four hours, each term.*

310. Thesis: After a month spent in reading under the direction of the professor of botany with a view to the selection of a subject the student will carry out a series of experiments on some problem in morphology, physiology or bacteriology. In addition to original experiments the student will review the literature dealing with his chosen topic, and make a complete and satisfactory report. It is hoped that the results of this work will be worthy of publication. *Lectures two hours, laboratory four hours, entire session*

GRADUATE WORK.

The department offers to properly prepared students opportunity for advanced work in botany, particularly in plant physiology and pathology. Students planning to do graduate work should consult with the head of the department as early in the course as possible, preferably at the beginning of the junior year, in order that the proper choice of the electives may be made. The general requirements for graduate work in the department are: The satisfactory completion of the undergraduate courses in botany, together with the required courses in organic and agricultural chemistry, courses in plant breeding and forestry (Horticulture 609 and 608), and a fair reading knowledge of German and French. By special arrangements with the department head, a student may begin graduate work without having fully met these requirements, with the understanding that they are to be fully met prior to serious entrance upon his work in this department, and in addition to the work in botany required for the Master's degree.

TEXT AND REFERENCE BOOKS.

Gager's Fundamentals of Botany; Ganong's Textbook of Botany; Coulter's Plant Structures; Robbins' Botany of Crop Plants; Gray's School and Field Botany; Kraemer's Botany and Pharmacognosy; Duggar's Plant Physiology; Coulter, Barnes and Cowles' Textbook of Botany; Jost's Plant Physiology; Marshall's Microbiology; Conn's Agricultural Bacteriology; Haas and Hill's Chemistry of Plant Products; Duggar's Fungous Diseases of Plants; Stevens' Fungi which Cause Plant Diseases; Hesler and Whetzel's Manual of Fruit Diseases.

HORTICULTURE.

PROFESSOR STARCHER.
ASSOCIATE PROFESSOR PRICE.

Instruction in this subject begins with the third term of the ›phomore year and continues through the junior and senior ears for students taking a regular four-year course in agri- ılture. A special two-year course in horticulture and related ıbjects is open to students who are unable to take the regular ›ur-year course.

Practical exercises in the laboratory and field supplement ıe lectures and recitations. Constant attention is given to ıe fundamental principles and science upon which the best ı practical methods is based.

SOPHOMORE CLASS.

601. Principles of plant culture: This includes the study ' germination, propagation, transplanting, conditions of plant ·owth, etc.; also seed testing, preparation and sowing of seed ›ds. *Recitations, two hours, third term. T. Th.* 10-11.

Plant propagation: (to accompany 601): Laboratory prac- ›e in seed testing, propagation of plants, pruning, etc. Stu- ›nts are required to submit illustrated notes. *Laboratory and ›ld, four hours, third term. T. Th.* 2-4.

Text-books: Principles of Plant Culture (Goff), and The ursery Book (Bailey).

JUNIOR CLASS.

602. Landscape gardening: An introduction to the general ıbject of landscape design. The trees, shrubs, vines, peren- als, and annuals adapted to southern gardens are studied. dividual problems are presented for the embellishment of e home and school grounds, and plans for public squares and ırks are studied. *Lectures, two hours, first term, Tu. Th.* -11.

Text-books: Landscape Gardening (Waugh). References: ındscape Gardening (Maynard), Modern Civic Art (Robin- n); The Landscape Beautiful (Waugh); Weidenmann and her authors.

603. Vegetable gardening: Studies of the principal truck d garden crops with notes as to their origin, classification d economic importance; methods of growing, fertilizing, har- sting, marketing, and storing these crops. *Recitations and ›tures, two hours, laboratory, two hours, second and third ›ms; second term, Tu. F.* 11-12, *Th.* 2-4; *third term, Tu. F.* -12, *W.* 2-4.

Text and reference books: Garden Farming (Corbett), Vegetable Gardening (Bailey), Up-to-Date Truck Growing in the South (Davis), Vegetable Gardening (Vilmorin), Southern Gardener's Manual (Newman), Vegetable Gardening (Watts).

604. Orchard technique: A laboratory course in spraying, pruning, fertilization, cultivation, and orchard management, supplementing course 603. *Two hours, second term, Tu.* 2-4

References: The Pruning Book (Bailey), Farm and Garden Rule Book (Bailey).

SENIOR CLASS.

605. Fruit growing: A study of the more important fruits and nuts of the United States, with special reference to their cultivation in home plantings and commercial orchards, harvesting, grading, packing, marketing, leading varieties for the several sections. *Recitations and lectures, three hours, laboratory, two hours, entire session. Lectures, M. W. F.* 9-10. *Laboratory, first and third terms, F.* 2-4; *second term W.* 2-4.

Text and reference books: Principles of Fruit Growing (Bailey) 20th revised edition. Fruit Harvesting, Storing and Marketing (Waugh), the Pecan (Hume), Citrus Fruits and Their Culture (Hume), Systematic Pomology (Budd and Hansen) and (Waugh), The American Fruit Culturist (Thomas), Peach Growing (Gould), Bush Fruits (Card).

606. Canning: Studies in the canning of the different fruits and vegetables. *Lecture one hour, laboratory two hours, first* term. *Tu.* 8-9 *and* 2-4.

607. Floriculture: This course briefly covers the subject of greenhouse construction and management, with special reference to growing of the leading vegetables and decorative plants with discussions on the forcing and marketing of vegetables and cut flowers. *Lecture one hour, laboratory, two hours, second term. Tu.* 8-9 *and* 2-4.

608. Forestry: An elementary course, embracing a study of the forest conditions in Alabama, care of woodlots, preservation of wood, and the uses of the different southern woods. *Recitations and lectures, three hours; laboratory and field exercises two hours, second term. Tu. Th.* 10-11; *W.* 12-1; *laboratory. M.* 2-4.

Text-books: Elements of Forestry (Moon and Brown), First Book of Forestry (Roth), Practical Arboriculture (Brown), Primer of Forestry (U. S. D. A.), Principles of Handling Woodlands (Graves), Economics of Forestry (Fernow), Principles of American Forestry (Green), Shade Trees in Towns and Cities (Solotaroff).

609. Plant breeding: A study of the improvement of plants, eories and laws of plant breeding, the origin of the choice rieties of garden and farm crops. *Lectures and recitations o hours, third term. Tu. and F.* 8-9.
Text and reference books: Principles of Plant Breeding ilbert and Bailey), Plant Breeding (Davenport), The Muta- n Theory, Species and Varieties (DeVries).
610. Thesis: Students who expect to make their major rk in horticulture are required to select a thesis subject not er than October 1st.

ENTOMOLOGY AND ZOOLOGY.

PROFESSOR HINDS.
ASSISTANT PROFESSOR ROBINSON.

SOPHOMORE CLASS.

701. Zoology: A general course in zoology is required of sophomore students in agriculture. The course is given the first and second terms, and includes brief discussion the relation of animals to plants and minerals, the nature cells, the functions involved in life processes and of the ssification and distribution of animals. The different animal ups are studied, beginning with the single celled animals d leading gradually to the most complex forms. *Lectures, o hours; laboratory four hours, first and second terms. T F.* 8-9; *W. Th. or F.* 2-4.
Text: Hegner's College Zoology. A laboratory fee of $1.00 charged to pay the cost of material and laboratory sheets.

SENIOR CLASS.

702. Entomology: In accordance with the catalogue re- irements the work in Entomology is taken by all senior stu- nts electing an agricultural group of courses, and by the cial two-year agricultural students during their second year. addition to this senior work, the subject is open to post- duate students, who have completed the senior course isfactorily, as an elective course leading to the degree of ster of Science. The work is continuous during the college ar.
The senior courses are designed to familiarize the students o anticipate engaging in agricultural work with the most portant general facts of entomology, including studies on the ucture of insects as applied to their identification; a syste- tic examination of the different groups, and of the most mmon insect pests of each group, with methods for their ntrol.

703. The Entomology of Disease, Hygiene and Sanitation: During the second term a series of lectures will be given on the relationship of insects to disease, hygiene and sanitation. This course will consider all factors relating to this subject, such as: life history of the pests, the hosts, the biological aspects of the problems and the methods of control for the various insects in question. Identification of the common insect pests relating to this subject will be presented for study in the laboratory.

Among the topics considered are: The principal southern species of economic insects; the chemistry, preparation and application of insecticides, their merits and defects; tests for detecting adulterations; the structure and use of insecticide apparatus, and other methods of insect control. The importance of improved methods of agricultural practice is shown and their effectiveness as controlling factors for insect pests is explained.

704. Economic Entomology: A series of lectures on bees and beekeeping is given, and demonstration of modern methods in manipulation of bees is afforded by the college apiary.

Methods in the collection, mounting and preservation of insect specimens are also studied, the student being required to make a systematic collection in the fall, and in the spring an economic collection of the pests most closely related to the future occupation of the student. A laboratory fee of $1.50 for the year is charged for material. *Lectures, three hours; laboratory two hours, entire session. T. Th.* 10-11, *M.* 2-5.

ANIMAL HUSBANDRY.

PROFESSOR TEMPLETON.
ASSISTANT PROFESSOR MONTAGUE.
INSTRUCTOR BURNS.

Instruction in this department is given in the class room, in the laboratories and upon the animal husbandry farm with the live stock. While lectures are given on judging animals, the instruction does not stop with the lectures; the students are taken to the barn and fed lots where the animals are placed before them and each student is required to make a written report concerning the animals. Class-room work in dairy instruction is supplemented, strengthened, and made practical by requiring each student to work in the dairy laboratory where butter is made, where Babcock test is used, where the lactic acid in cream is determined, etc. In the senior year, trips are made to cities, state and county fairs, and farms to study live stock judging and management. The live-stock provided by the college for the students' use in studying breeds and judging consist of pure bred herds of Angus, Hereford, Shorthorn and Jersey cattle; Southdown sheep; Duroc-Jersey, Poland China and Berkshire swine. Percherons, light horses and mules are available for class work.

The department now has the complete herd books of practically all of the leading breeds of live stock in America. By the use of these the student is enabled to inform himself in regard to all pedigrees and to study the different scales of points which the breeders have adopted to represent the highest types of the various breeds. All class room instruction is given by means of text-books and lectures. Many of the lectures are illustrated by the use of a balopticon.

The courses in this department may be grouped under five main heads:

(1) Judging of live stock; (2) breeding of live stock; (3) feeding of live stock; (4) management of live stock; (5) dairying.

The student is given an opportunity to specialize in animal husbandry throughout the junior and senior years. The courses are as follows:

SOPHOMORE CLASS.

802. Judging beef cattle: The object of this course is to make the student familiar with the various classes and grades of cattle recognized by the leading stock markets, and to familiarize him with the leading beef breeds. Instruction is

given by lectures, the use of the score card, and by comparative judging. *Laboratory, two hours, first term. M.* 2-4.

803. Judging dairy cattle: The student is familiarized with the dairy types and breeds, and is given judging instruction by the employment of the same methods as used in beef cattle judging (802). *Laboratory, four hours, second term. M.* 2-4, *W.* 2-4.

JUNIOR CLASS.

804. Dairying: The study of the secretion, character, composition, and production of milk, is made; proper methods of handling milk and cream for consumption, pasteurizing, sterlizing. The students are given thorough work in using the Babcock test and the lactometer, and the lactic acid test, together with the ordinary tests for the purity of milk and its adulterants. They are also drilled on all the phases of buttermaking and standardizing milk and cream. Familiarity with the construction, care and operation of the leading makes of cream separators, and other dairy equipment, is required. *Lectures, two hours; laboratory, two hours, first term. Tu. Th.* 9-10; *W. Th.* 2-4.

805. Swine judging: Considerable time is given to the study of the market class of grades and the leading breeds of lard and bacon types of hogs adapted to southern conditions. The lecture work is followed by the students using the score card and doing comparative judging. *Laboratory, four hours, second term. W.* 2-4, *Th.* 11-1.

806. Sheep judging: The student is instructed in the methods of judging sheep, considering the market classes and grades, and the characteristics of the principal breeds. *Laboratory, two hours, third term. Th.* 2-4.

806 (a). Advanced stock judging: This course is for junior agricultural students who are especially interested in livestock judging, and is a prerequisite to making the intercollegiate stock judging team. No college credit is given. *Hours to be arranged, latter half second term and the third term and first half following fall term.*

SENIOR CLASS.

807. Principles of animal breeding: The lectures of this course will embrace the principles and practices involved in the improvement of the domestic animals. The subjects of reproduction, variation, selection, heredity, line breeding, inbreeding, cross breeding, grading up, etc., will be discussed in their relations to practical breeding problems. *Lectures, two hours, first term. M. W.* 8-9.

808. Advanced feeding: This course consists of lectures, supplemented by reference reading, upon the most profitable methods of producing, finishing and marketing, pork, beef, and mutton. The various concentrates and roughages are discussed as to their importance and efficiency as feeds for horses, mules and dairy cattle. *Lectures, three hours, entire session. M. W. F.* 10-11.

809. Meats: This consists of a study of the structure and composition of meats, quantity, cost and food value of the various cuts of beef, mutton, and pork; exercise is also given in judging the carcasses of the different classes of animals. A study is made of how the home-dressing and home-curing of pork is carried on. Lectures are given upon the effect of feeding and breeding of the different animals as affecting the value of the carcass and the quality of the meat. *Laboratory two hours, second term. F.* 2-4.

810. Poultry: In this course an effort is made to acquaint the student with the different types of poultry with relation to their use and value on the farm. Instruction is given also in feeding, managing, housing, and judging poultry. *Lectures, two hours, third term. M. W.* 8-9.

811. Judging horses and mules: Lectures and laboratory work are given in the judging of the various classes of horses and mules which are adapted to Alabama conditions. *Laboratory, two hours, second term. M.* 2-4.

812. Live stock management: The raising of horses, cattle, sheep, and swine as a business, is discussed in full detail, featuring the care and management in production and marketing. A study is made of the methods used by the most successful stock farmers. Practical work is given in preparing stock for shows and sales. This course will be limited to, and required of students majoring in animal husbandry. *Lectures, one hour; laboratory, two hours, entire session. Th.* 8-9; *Tu.* 2-4.

813. Herd book study: This includes a study of the various herd books with the view of becoming familiar with the pedigrees of the leading strains and families of the different breeds of live stock. Emphasis is laid on the methods and rules of registration for each of the breeds of livestock. The rules and regulations governing the importations of livestock into the United States and into Alabama, together with the rules and regulations governing the moving of livestock within the United States and Alabama are studied. *Lectures, two hours, second term. M. W.* 8-9.

814. Dairying: This course is outlined to meet the requirements of the senior veterinary students and is similar to

course 804. *Lectures, one hour; laboratory, two hours, second term. F.* 11-1.

Special Two-Year Course in Agriculture.

FIRST YEAR.

815. Dairying: A separate course in this subject giving special attention and instruction for the benefit of the two-year students in agriculture, is maintained. The student is familiarized with the butter fat tests, the use of the lactometer, determination of the lactic acid in milk, churning, cream separation, etc. Practice is also given in determining the various common adulterants of milk. *Lectures, two hours; laboratory, four hours, first term. W. F.* 8-9, *Tu. Th.* 2-4.

816. Live stock feeding: This course is offered for the benefit of the first-year veterinary students, and the first-year special agricultural students. The food requirements of the animals' bodies are briefly considered. All through this course the practical, rather than the scientific side of feeding, is emphasized. Special reference is made to feeding horses and dairy cattle. Veterinary students are allowed to discontinue this subject at the middle of the second term. *Lectures, two hours, entire session. First term, Tu.* 8-9, *Th.* 10-11; *second and third terms, M. Th.* 8-9.

817. Live stock management: This course, also, is for the first-year veterinary students, and the first-year special agricultural students. It consists of a series of lectures on the care, housing, and management of horses, cattle, swine, and sheep. *Lectures and laboratory, three hours, latter half of second and the third term. Tu.* 10-11; *W.* 2-4.

818. Dairy cattle judging: The second term is devoted to judging dairy cattle, in the place of the course in dairying. A detailed study of the several different breeds of dairy cattle is made, and their chief distinctive characteristics pointed out. Exercises in practical judging are given by the use of the score card and by comparative judging at the barns. *Laboratory, four hours, second term. Tu. Th.* 2-4.

819. Judging beef cattle: In this course the student is familiarized with the leading breeds of beef cattle, and a study of the conformation of each type is made by practical judging. *Laboratory, two hours, third term. Tu.* 2-4.

SECOND YEAR.

820. Judging horses and mules: A special course of judging is maintained for the second year special students in agriculture. The various types of horses and mules and the other market classes are studied. Representatives of the different classes

are brought before the students who are, by detailed study, given an opportunity to become thoroughly familiar with each of them. *Laboratory, four hours, first term. M. W.* 10-12.

821. Poultry: This course in poultry consists of the study of the types and breeds; the housing, feeding and caring for all classes and ages. From time to time hours are spent in judging. *Lectures, two hours, first term. M. F.* 12-1.

822. Swine judging: This course is a continuation of the course of judging begun in the second year by the study of horses and mules. The leading breeds of swine are kept at the station barns, and the student has ample opportunity to become thoroughly familiar with each. The difference in function and conformation between the lard and bacon types, and the scrubs or natives, is pointed out. A study is made in practical judging by the use of the score card, and by comparative judging. *Laboratory, four hours, second term. M W.* 2-4.

823. Meats: This course includes a study of the effects of various feeds on the meat and lard of hogs, and other animals; finishing stock for slaughter; slaughtering; dressing and curing of the meat. In the laboratory work the student is required to put into practice the methods taught. *Lecture, two hours; laboratory, two hours, second term. Tu.* 9-10; *F.* 2-4.

824. Principles of breeding: A course of study in the principles of breeding live stock, giving special attention to the problems of the practical breeder. Much attention is given to fecundity, inbreeding, cross-breeding, grading-up and inheritance. Variation, its cause and benefits are studied. *Lectures, two hours, third term. Tu.* 8-9; *F.* 12-1.

825. Sheep judging: A course is given to make the student thoroughly familiar with the leading breeds of sheep, their conformation and uses. *Laboratory, two hours, third term. F.* 10-12.

SCHOOL AGRICULTURE.

JUNIOR AND HOME ECONOMICS EXTENSION DEPARTMENT.

L. N. DUNCAN.
J. C. FORD.
P. O. DAVIS.
J. L. HERRON.
MARY FEMINEAR.
LOUISE THOMAS.
GLADYS TAPPAN.
AGNES HITT.
*HELEN JOHNSTON.

This department was created July 1, 1914, and is a part of the agricultural extension work conducted in Alabama by co-operation between the College and the United States Department of Agriculture.

The special lines of work in this department are as follows:

Organization of boys' corn clubs.
Organization of boys' pig clubs.
Organization of girls' canning clubs.
Home demonstration work for farm women.
Poultry clubs.

* In co-operation with the Alabama Girls' Technical Institute, Montevallo, Alabama.

DEPARTMENT OF PHARMACY.

PROFESSOR BLAKE.
ASSISTANT PHILPOT.

The pharmacy department of this institution is a member in good standing of the American Conference of Pharmaceutical Faculties.

Three courses are offered—the two-year course leading to the degree *Graduate in Pharmacy;* the three-year course leading to the degree *Pharmaceutical Chemist;* and the four-year course leading to the degree *Bachelor of Science in Pharmacy.*

The practical work in pharmacy includes the manufacture of not less than two hundred pharmaceutical preparations and the compounding of not less than fifty prescriptions.

The work in pharmacognosy includes the study of more than 250 drugs, each of which the student is required to recognize by its physical and chemical properties, giving Latin name, common name, original habitat, constituents, medicinal action and dose.

FIRST YEAR.

401. (a). Pharmacy: Metrology; specific gravity; heat and applications of heat; fundamental operations of pharmacy; apparatus used in pharmaceutical processes, pharmaceutical arithmetic. *Three hours, first term. M. W. F.* 8-9.

(b). Pharmaceutical laboratory: Preparation of official and non-official galenicals, including the following classes of preparations: waters, spirits, liquors, mucilages, pills, elixirs, oleates, tinctures, etc. *Two hours, lectures, six hours laboratory, first and second terms. T.* 10-11, *Th.* 12-1, *Tu. Th.* 2-4, *S.* 11-1.

402. Pharmacognosy: The study of crude drugs; lectures, recitations, and practical work in identification. *Four hours, second and third terms. M. T. W. F.* 11-12.

406. Pharmaceutical chemistry: A study of the official salts, official title, chemical formula, reactions, description, physical identification, dosage, etc. *Three hours, second and third terms. M. W. F.* 8-9.

SECOND YEAR.

403. (a). Pharmaceutical technique and manufacturing pharmacy; official and non-official galenicals and chemical preparations; a thorough study of the U. S. P. and N. F. class work. *Three hours, entire session. M. W. F.* 12-1.

(b). Manufacture of more difficult galenicals and U. S. P.

chemical preparations. *Twelve hours, first term. T. Th.* 2-6, *S.* 8-12.

(c). Alkaloidal assay. *Nine hours, second term. T. Th.* 2-4, *S.* 8-1.

(d). The compounding of fifty or more prescriptions and individual instruction. *Four hours, third term. T. Th.* 2-4.

404. Pharmacognosy: The study of crude drugs. This course is a continuation of course 402. *Three hours, first term. T. Th.* 10-11, *W.* 9-10.

405. Prescription reading and incompatibilities: Lectures and recitations. *Three hours, second and third terms. T. Th.* 10-11, *W.* 9-10.

407. United States Pharmacopoeia: This course is primarily a review intended to prepare the student to stand the State examinations. It covers all crude drugs, organic and inorganic chemicals and preparations found in the U. S. P. and the N. F. *Three hours, second and third terms. M. Th. F.* 9-10.

THIRD YEAR.

408. (a). Food and Drug Analysis: A study of the composition and method of analysis of leading food products, such as vinegars, fats and oils, dairy products, canned fruits and vegetables, alcoholic liquors, candies, preservatives, etc.

Drug analysis includes the chemical and microscopical examination of drug products that are especially liable to adulteration. *Twelve hours, first term. T. Th.* 2-6, *S.* 8-12.

408 (b). Organic Chemical Laboratory: The manufacture of not less than 35 organic chemicals. *Eight hours, second and third terms. T. Th.* 2-6.

TEXT AND REFERENCE BOOKS.

Arny's Principles of Pharmacy; Kraemer's Botany and Pharmacognosy, Caspari's Treatise on Pharmacy; Sayre's Organic Materia Medica and Pharmacognosy, Culbreth's Materia Medica and Pharmacognosy, Scoville's The Art of Compounding, Dorland's Pocket Medical Dictionary, Ruddiman's Incompatibilities in Prescriptions, Lyon's Pharmaceutical Assaying, United States Pharmacopoeia, United States Dispensatory, National Dispensatory, Prescott's Organic Analysis, Allen's Commercial Organic Analysis, Pharmaceutical Journals, Reports of American Pharmaceutical Association, Holland's Materia Medica and Toxicology, Leach's Food and Drug Analysis, Gatterman's Practical Methods of Organic Chemistry.

SCHOOL OF AGRICULTURAL EDUCATION

PROFESSOR JUDD, Director
PROFESSOR STIVERS
PROFESSOR CRENSHAW
PROFESSOR FULLAN
PROFESSOR RUTLAND
PROFESSOR TEMPLETON
ASSOCIATE PROFESSOR PRICE

The Department of Education was established in 1915 to meet an increasing general demand for teachers, principals, supervisors, and superintendents for the schools of Alabama. During the four-year period that has followed a large proportion of the total of the registrations have been from the College of Agriculture. This result is due in part to the fact that agriculture constitutes the major interest of the State, and to the further fact that for no other occupation, engaging large numbers of people, have so definite and extensive educational facilities been provided in our public schools. This provision for agricultural instruction has created a demand for teachers of Agriculture, and consequently for the training of teachers of Agriculture.

VOCATIONAL AGRICULTURE

The need of trained Agricultural Teachers has been emphasized by the enactment by the National Congress of the Smith-Hughes Bill providing for instruction in Vocational Agriculture. By reason of the insight gained during these first four years of the Department, and because of the new conditions developed by the Federal statute, it has seemed wise to place the chief emphasis upon the training of teachers for Vocational Agriculture, and to make liberal provision for the same.

SCHOOL OF AGRICULTURAL EDUCATION

The Department of Education organized to meet a general demand for the training of teachers, has, in consequence, been reorganized into a School of Agricultural Education, with a four-year curriculum. Provision is made in the senior year for specialization in the field of major interest. Upon the completion of the course there is granted the degree of Bachelor of Science in Agricultural Education.

REQUIREMENTS FOR DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION.

The requirements for the degree of Bachelor of Science in Agricultural Education are the same in general as for the Bache-

lor's degree in the other departments of the Institute. The curriculum of the Agricultural College, consisting of 176 half-year hours, with certain modifications, furnishes the basal subjects for the degree of Bachelor of Science in Agricultural Education. For certain of these subjects, 24 half year hours in Education are required. The work of the senior year is largely elective. The electives are chosen from the curricula of the College of Agriculture and of the School of Education, with the advice and approval of the Director of the School of Education and the Dean of the College of Agriculture.

STATE TEACHER'S CERTIFICATE.

Students who graduate from the Course in Agricultural Education will receive the degree of Bachelor of Science in Agricultural Education, and will be entitled to receive, upon payment of fee, a first grade State Teacher's Certificate, good for a period of five years and renewable for life.

DEMAND FOR TEACHERS.

The demand upon the College for teachers of Vocational Agriculture and the related sciences has been far greater than it could supply. Salaries are far more liberal than in the general field of teaching. Positions paying from $1,500 to $2,000 are not uncommon.

COURSES OF INSTRUCTION.

Below are listed the subjects of study in Education, and, in addition, certain other subjects which have been instituted to meet the special requirements of students in Vocational Agriculture and for the degree of Bachelor of Science in Agricultural Education.

Under the head of *Courses of Instruction, School of Agricultural Education,* of this catalog, will be found arrangement of the required courses of study by years and by terms. Some option, however, may be exercised as to the year in which the courses in Education may be taken. Courses in Education not required are open to seniors as electives, provided the total number of half-year hours in Education, required and elective, shall not exceed 30.

1. Elementary Psychology
   An elementary course prerequisite to the later courses in Agricultural Education, two hours the session, four credits. Required.
2. Vocational Psychology
   A consideration of the questions of vocational guidance, management and control of the human factor in vocational processes. Two hours, first term, one and one-half credits. Required.

3. Principles of Education
Two hours, second and third terms, two and one-half credits. Required.
4. Organization and Administration of Rural Schools
Two hours, first term, one credit. Elective.
5. Methods of Rural School Teaching.
Two hours, second term, one credit. Elective.
6. Supervision of Instruction in Rural Schools
Two hours, third term, one credit. Elective.
7. Teaching High School Agriculture
Three hours, the year, six credits. Required.
8. History of Agricultural Education
Two hours, first term, one and one-half credits. Required.
9. Organization and Administration of Agricultural Instruction.
Two hours, second and third terms, two and a half credits. Required.
10. Agricultural Extension Teaching
Two hours, first term, one credit. Required.
11. Agricultural Practice Teaching
Two weeks of actual practice in teaching High School Agriculture, to be done in the second or third term of the senior year, one credit. Required.
12. History of the American High School
Two hours, first half of first term, one credit. Elective.
13. Methods of Teaching in Secondary Schools
Two hours, second half of first term and second and third terms, three credits. Elective.
14. The High School Pupil
Two hours, first term, one and one-half credits. Elective.
15. High School Curricula
Two hours, second and third terms, two and one-half credits. Elective.
16. Practicum in Agricultural Education
Two hours, the year, five credits. Elective.
17. Organization and Administration of High School Education
Two hours, first term, one and one-half credits. Elective.
18. Present Practices in High School Instruction
Two hours, second and third terms, two and one-half credits. Elective.
19. General School Administration
Two hours, the year, four credits. Elective.
20. Educational Measurements
Two hours, first term, two credits. Elective.
21. School Surveys
Two hours, second and third terms, two credits. Elective.
22. Educational Theory
Two hours, first term, two credits. Elective.
23. Public School Curricula
Two hours, second and third terms, two credits. Elective.
24. Agricultural Mathematics
Three hours, the session, freshman class. Required.

25. Farm Carpentry
Four hours, first term, freshman class. Required.
26. Farm Blacksmithing
Four hours, second term, freshman class. Required.
27. Farm Implements and Machinery
Four hours, third term, freshman class. Required.
28. Agricultural Drawing
Four hours, first term, freshman class. Required.
29. Agricultural Surveying
Four hours, second and third terms, freshman class. Required.
30. Poultry Breeds and Breeding
Four hours, first term, freshman class. Required.
31. Poultry Feeds, Feeding, and Management
Four hours, second term, freshman class. Required.
32. Egg Production, Marketing, Incubation, and Breeding
Four hours, third term, freshman class. Required.
33. Home Projects and School Gardens
Three hours, the session, sophomore class. Required.
34. Rural Social Conditions
Three hours, first term, junior class. Required.
35. Principles of Rural Economics
Three hours, second and third terms, Junior class. Required.
36. Agricultural Composition
Three hours, first term, sophomore class. Required.
37. Oral Debate and Public Address in Agricultural Subject Matter
Three hours, second and third terms, sophomore class. Required.
38. Agricultural Journalism
One hour, the session, senior class. Required.
39. Agricultural Conference
Meets fortnightly during the senior year. Required.

:OLLEGE OF VETERINARY MEDICINE

By direction of the United States Civil Service Commission ıd Department of Agriculture, this college has been added to ıe list of accredited veterinary colleges, and placed in class A.

VETERINARY MEDICINE

PROFESSOR CARY.
ASSISTANT PROFESSOR MCADORY.
INSTRUCTOR FERGUSON.
INSTRUCTOR LEWALLEN.
INSTRUCTOR WEBB.
LECTURER BAHNSEN.
LECTURER WHITE.

VETERINARY MEDICINE

The four-year course in veterinary medicine leads to the de·ee of Doctor of Veterinary Medicine. It has been establish-l to meet the demand of the young men of the South who esire to become educated veterinarians; and for students who esire to prepare for the study of human medicine.

EQUIPMENT.

The main veterinary building has an independent gas plant ıd a connected sewer system. It is supplied with electric ghts and water. The building contains an office, two lecture ›oms, a physiological laboratory, and a museum on the first oor; on the second floor are located two research laboratory ›oms, a library and reading room, a large lecture room ›ntaining an incubator room, and all the necessary apparatus ›r pathological, histological, and bacteriological work.

A separate building is used as a house for small animals ·abbits, guinea pigs, pigeons, etc.) that are employed for ex-erimental and demonstration work in bacteriology, histology, ıd phyisology.

The anatomy division has a separate one-story brick build-ıg with good ventilation and extensive sky light. It is sup-lied with gas, water, and electric lights. The anatomy mu-eum contains the skeletons of man, the horse, the ox, the ıeep, and the pig, and models of limbs and special organs of ıan and the horse. It is also supplied with different lots of ›nes of the horse with dissected and dried limbs showing ıe relation and attachment of muscles. An hexagonal operat-ıg pavilion thirty-six feet in diameter is used for surgical inic and contains a simplicity operating table. It is supplied

with water and electric lights and lockers for students.

The veterinary hospital contains five box stalls, four open single stalls, an office, and feed room, on the first floor; a large room for storing hay, fodder, and feed, is found on the upper floor. The veterinary department has for its exclusive use about six acres of land divided into lots, pens and paddocks.

HOG CHOLERA SERUM PLANT.

The hog cholera serum plant occupies about twenty-five acres of land southwest of the College grounds. Upon this are located a large two-story brick and cement serum building (76 x 30), a brick and cement virus building (30 x 36), and a large hog barn (60 x 100) with cement floor. The rooms in the virus and serum buildings are sufficiently large to admit students in the veterinary medical and agricultural courses for instructions in inoculating hogs and in the various processes in making virus and serum. Some of the veterinary medical students work every day in the serum plant and thus become conversant with sterilizing, bleeding, hypering, inoculating and handling the virus, the serum and the hogs.

A well-equipped slaughter house has just been completed for the use of the serum plant, the College and the Town of Auburn. It is available to veterinary students for practical experience in meat inspection.

COURSES OF STUDY.

The four-year veterinary course students take six terms of work in the department of animal husbandry and dairying, two terms of work in pharmacy; seven terms of work in the chemical department; two terms of work in botany, and one year's work in English. The facilities and equipment of these departments are excellent.

The veterinary course is especially strong in practical laboratory work.

1. In anatomy the work of dissection is continued through the first, second and third years. It is a well established fact that useful surgery or real anatomy cannot be acquired without careful and thorough work in the dissecting room. Special stress is given to comparative anatomy of the horse, ox, sheep, pig, dog and poultry.

2. Clinical laboratory work is also required throughout the course. The clinical work comes six days in the week and the cases presented embrace mules, horses, cattle, sheep, dogs, poultry, and hogs. The variety is such as to illustrate a large number of diseases, surgical operations, and therapeutic applications.

. The physiological laboratory is supplied with apparatus tests and experiments in physiology.

. The laboratory for pathology, histology, and bacteriology xtensive, and is fully fitted with the latest apparatus. This oratory has been the outgrowth of twenty-five years of nulative additions. The aim is to teach students to work in laboratory rather than to memorize the printed page of the t-book.

. In chemistry and toxicology the students work in one of best of chemical laboratories.

. In pharmacy the students work in practical pharmacy six hours a week for two terms. In this they learn to ognize, compound and dispense drugs.

. The animal husbandry department affords ample facili- for practice in feeding and judging cattle, sheep, hogs, ses and mules.

. The dairy department gives practical laboratory work in ry operations and in handling and feeding dairy cattle.

. The botanical department is well equipped and gives ellent opportunity for laboratory work in poisonous and licinal plants.

0. The subjects in the course of study are such as are uired in the leading veterinary colleges of America. The rse meets the requirements of the American Veterinary lical Association and the Bureau of Animal Industry and ted States Civil Service Commission. It is the aim to have teaching staff meet the requirements of the best standards.) length of the course is four years of nine months each. raduates of the College of Veterinary Medicine are admitted civil service examination to the appointments in the service he Bureau of Animal Industry of the United States Depart- it of Agriculture and to the army, and also to membership he American Veterinary Medical Association.

DESCRIPTION OF COURSES.

FRESHMAN CLASS.

01. Physiology: The students in all of the pharmacy rses, in the course in chemistry and metallurgy, and in the rse of veterinary medicine and surgery, all study elemen- ' physiology.

he aim of this course is to teach anatomy, histology, hygiene sanitation. The instruction is given by lectures, demon- tions and text-book. Text-book: Martin's Human Body. vanced). *Two hours, entire session.*

)2. Veterinary Science: Prescribed for freshman veteri- y students and juniors in animal husbandry. Elective for

all agricultural courses. The aim of the instruction is to teach such lessons as will enable them to prevent many diseases on the farm by correct sanitation. At the same time they will be instructed in the ways and means of treating and handling the common diseases of farm animals. *Lectures two hours and clinics three hours. Veterinary students, first term; juniors in agriculture, entire session.*

103. General chemistry (Agr. 101): This consists of a series of lectures including a discussion of fundamental principles of chemical philosophy in connection with the history, preparation, properties and compounds of the metallic and non-metallic elements, with the main facts and principles of inorganic chemistry. In this course, the more common applications of chemistry to the arts and manufactures are discussed. The apparatus used for experimental illustration is extensive, containing the newest and approved improvements necessary for presenting the subject in the most attractive and instructive form. *Three hours in class, six hours in laboratory, entire session.*

105. Composition and Literature. The chief aim of this course is to aid the student to master spoken and written English for his practical needs as an educated man. In addition to frequent themes, oral and written reports, class criticism and discussion, conferences with the instructor are required in order to correct errors, to redirect misguided effort, and to arouse each student to his highest attainment.

Another aim of this course is to stimulate the enjoyment and appreciation of literature as a means to culture. Assigned readings from American and English writers, both standard and contemporary, will be announced from time to time and encouragement will be given for considerable voluntary reading. This part of the course will be conducted by means of lectures and conferences on the nature and function of literature, its types and forms, and its moral and artistic values.

In order further to encourage freshmen to participate in worthy student activities and to put forth special effort to develop their powers of expression, the department of English will give credit (a) for public speaking in literary societies, (b) for writing done for publication or original speeches delivered on college occasions, and (c) for voluntary reading in general literature done under the direction of the head of the department. Further information about this work is given at the beginning of the college session. Text-books will be announced later. *M. W. F.*, 10-11.

106. Veterinary medicine: A course covering the internal iseases of solipeds, the horse, mule, ass. *Three hours, :cond and third terms.*

107. Anatomy: Consists chiefly of dissections with a few ctures and reviews. It covers during this year (a) Osteology, study of the bones; (b) Arthrology, a study of the articula- ons; (c) Myology, a study of the structure, form and relations, tachments and functions of muscles. *Ten hours, entire ses- on.*

108. Histology: Treats of the minute or microscopic anato- y of the body. It includes fixing, imbedding, sectioning, ounting, staining and microscopic study of cellular and ıter-cellular structure of tissues. It is taught by lectures, xt-books and laboratory work. *Five hours, entire sesssion.*

109. Judging dairy and beef cattle: It includes practical ıercises in judging the breeds and types of dairy and beef ıttle. This work is done by the Animal Husbandry Depart- ent. *Two hours, first term.*

110. Judging swine and sheep: This embraces practical ıercises in determining the good and bad points of swine ıd sheep. *Two hours, second term.*

111. Judging horses and mules: This consists of lectures ıd practical exercises in judging the various breeds and class- ; of horses and mules. *Two hours, third term.*

112. Clinics: This is a poly-clinic where all kinds of cases ıd all kinds of animals are clinically examined, studied, ɔerated on, and treated. *Three hours, entire session.*

SOPHOMORE CLASS.

113. Embryology: A study of the development of the nbryo in its various stages from the fertilized ovum to the ıll grown embryo, and is designed to prepare students for ıe study of the principles of breeding and obstetrics. *Three ɔurs, first term.*

114. Organic chemistry (Agr. 103b): This course, though ɔmewhat more condensed, is similar to Agr. 103 (a), with ıe exception that the latter part of the course is devoted ı a special study of fats, carbohydrates and proteins, with ıference to their function in the life processes of plants and ıimals. *Three hours, first and second terms.*

115. Anatomy: This covers (a) Internal organs; (b) blood ıssels, heart, lymph vessels and lymph glands; (c) the ner- ɔus system; (d) special sense organs; (e) genito-urinary ·gans; (f) the foot; (g) the larnyx. *Ten hours, entire session.*

116. Veterinary medicine: Embraces a study of the special ıthology, etiology, symptoms, diagnosis and treatment of

internal diseases of (a) cattle; (b) sheep and goats; (c) swine. *Three hours, entire session.*

117. Clinics: Surgical, internal and external diseases of all animals in the hospital and at the poly-clinic are examined, inspected and studied and recorded by the student. *Eight hours, entire session.*

118. Bacteriology: Includes a study of the pathogenic bacteria, their classification, modes of reproduction, cultural and staining characters, habitat, methods of causing disease, etc. *Six hours, entire session.*

119. Physiological chemistry: Treats of the chemistry of sera, globulins, proteids in the other organic bodies or compounds found in animal bodies. *Four hours, third term.*

120. Pharmacy: Treats of the physical and chemical characters of drugs, preparation of various official drugs and the compounding of prescriptions employed in veterinary practice. *Six hours, second and third terms.*

121. Botany: A study of poisonous and medicinal plants. *Five hours, third term.*

JUNIOR CLASS.

122. Surgery: This embraces general and special surgery of domestic animals. *Four hours, entire year.*

123. Obstetrics: It embraces the study of the normal and diseased conditions of the animal body during pregnancy. *Two hours, entire session.*

124. Anatomy: Embraces the comparative anatomy of the (a) ox; (b) sheep; (c) swine; (d) dog; (e) cat; (f) poultry. *Eight hours, entire session.*

125. Botany: A continuation of No. 121: A practical study of poisonous and medicinal plants. *Six hours, first term.*

126. Veterinary medicine: This course treats of the internal diseases of the (a) dog; (b) the cat; (c) poultry. *Three hours, first term; four hours, second and third terms.*

127. Veterinary physiology: Treats of normal actions or functions of the organs and apparatus of the bodies of domestic animals in health. *Three hours, first and third terms; four hours, second term.*

128. Clinics: A study of general and special surgical and medical cases presented at the hospital and poly-clinic. *Ten hours, entire session.*

129. Infectious diseases: Embraces a study of the causes, modes of transmission, methods of diagnosis and prevention of communicable diseases of domestic animals. *Three hours, second and third terms.*

SENIOR CLASS.

131. Therapeutics: A study of all materials used in disease ınd considers the action of these materials or drugs during ıealth and in diseases, and their applications or uses in dis-ıases. *Five hours, first and second terms.*

132. Principles of breeding (Agr. 808): Embraces the ›rinciples and practices involved in the improvement of do-nestic animals. The subjects of reproduction, variation, selec-ion, heredity, grading up, etc., will be discussed in their elations to practical breeding problems. *Two hours, first erm.*

133. Dairying (Agr. 814): The study of the secretion, char-cters, composition and production of milk is made; proper ıethods of handling milk and cream for consumption, pas-eurizing and sterilizing are covered. Students are taught ıow to use the Babcock tester, the lactometer, and to test for ıctic acid, for purity and adulterants. They are drilled in utter making and in standardizing milk and cream. Familiar-ly with the construction, care and operation of the leading ıakes of cream separators and other dairy equipment is re-uired. *Four hours, second term.*

135. Surgery: This will be a continuation of special surg-ry, foot diseases and lameness. *Two hours, first term.*

134. Feeding: Embraces the food requirements for differ-nt animals; calculations and mixing of rations, using the arious concentrates, roughages, etc. *Three hours, third term.*

136. Clinics: Includes special and poly-clinic cases in ırgery, internal medicine, infectious diseases, lameness, etc. *'ight hours, entire session.*

137. Pathology: Deals with the anatomy and histology of iseased tissues and organs. The cellular and inter-cellular hanges that occur in disease are studied in text-book and ›ctures, and in the laboratory diseased cells and tissues are ıamined macroscopically and microscopically. *Seven hours, rst term; eight hours, second term.*

138. Meat Inspection: A study of the ante-mortem and ost-mortem conditions of healthy and diseased animals. The ecomposition, putrefaction and fermentation and adulteration f meats are studied. This course embraces lectures, text-ook work and laboratory work in class room and slaughter ouse. Auburn now has a well built and equipped slaughter ouse. *Three hours, first and second terms.*

139. Milk inspection: Includes a study of diseases of dairy ıttle (tuberculosis, udder diseases, etc.,) filth, bacteria and dulterants of milk; feed, water supply, dairy barns, pens and astures; dairy cans, buckets, bottles, wagons, pasteurizers,

sterilizers, milk houses, and milkers. *Five hours, third term.*

140. Parasites: This course deals with the plant and animal parasites that infest man and animals. The hosts, anatomy, classification, modes of life, life history, toxic and other effects on hosts are studied. Specimens are collected, classified, mounted or preserved. *Three hours, second and third terms.*

141. Surgical exercises: This consists of a series of practical exercises covering the most common surgical operations. *Three hours, third term.*

142. Urinalysis: This covers a laboratory course in the chemical analysis of the urine of animals. *Three hours, third term.*

143. Thesis: Every student must develop a thesis on some veterinary subject, and this thesis must contain some original investigation. *Three to four hours, entire session.*

144. Toxicology (Agr. 110e): Embraces a study of the actions of poisons on animals, and a laboratory course in the official tests for the different poisons. *Seven hours, third term.*

TEXT AND REFERENCE BOOKS.

General Chemistry—McPherson and Henderson.
Organic Chemistry—Moore.
Physiology Recitations—Martin's Human Body.
Physiology Laboratory—Fish's Elementary Exercises.
Veterinary Physiology—Smith's Manual of Veterinary Physiology.
English—Texts to be selected.
Anatomy—Sisson's Comparative Anatomy; Chauveau.
Clinical Laboratory—Clinic Note Books.
Histology—Bailey; Lectures.
Embryology—Prentiss; Bailey; Lectures.
Principles of Breeding—Marshall.
Feeding Live Stock—Henry; Smith; Jordan.
Livestock Judging—Craig; Plumb; Lectures.
Dairying—Wing.
Botany—Gray; Pammel; Lectures.
Pharmacy—Ruddiman's Pharmacy; U. S. P.
Bacteriology—Moore; Lectures.
Pathology—Kinsley; Zeigler; Kitt, Adami.
Obstetrics—Williams; DeBruin; Fleming; Dalrymple.
General Surgery—Frohner; Moeller; Dollar; Lectures.
Special Surgery—Moeller; Merillat; Frohner, Reeks; Lectures.
Surgical Exercises—W. L. Williams; Lectures.
Materia Medica and Therapeutics—Frohner; Wilcox; Winslow; Fish; Quitman; Milks.
Diseases of the Dog—Muller-Glass.

Veterinary Medicine—Law, Vols. 1, 2, 3; Moussu; Friedberger d Frohner; Huytra and Marek.
Diseases of Cattle—Dollar; Moussu; U. S. Department of riculture.
Diseases of Swine—Kinsley.
Diseases of Poultry—Kaupp.
Infectious Diseases—Moore; Law, Vol. 4.
Parasites—Neumann; Law, Vol. 5, Kaupp.
Meat Inspection—Edelmann; Mohler-Eichhorn; Ostertag.
Milk Inspection—Ernest-Mohler-Eichron; Conn; Klein.
Lameness—LaCroix.
Toxicology—Tanner; Fish.
Urine Anaylsis—Fish.
Restraint of Animals—White.
Castration of Animals—White.

GENERAL INFORMATION

CADET BAND

A. L. THOMAS, Bandmaster.

Three musical organizations are maintained—the band, the orchestra, and the glee club. Membership in these organizations is open to any student who has musical talent.

The band is maintained by the college for students who desire to develop their musical ability and for those who wish to learn music. It furnishes music for all college exercises, and takes part in military manoeuvers. Regular and individual instruction is given free of charge during the first term, embodying the rudiments of music and general musical information in conjunction with the practical instruction on the instrument. Public concerts are given weekly during the second term, and engagements elsewhere are usually arranged.

A gold medal is given each year by the bandmaster to the member who makes the best record.

The orchestra is an organization for musical recreation, and members are carefully selected by the director according to their musical ability.

The glee club, comprising the quartet, chorus, and stringed instruments is a student organization. The services of a musician are secured to assist with the instruction and training of the quartet and chorus. Two concerts are given at the college and concert tours are arranged during the second and third terms.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

This association is regularly organized and a suite of well furnished rooms has been secured for its exclusive use. Through its weekly meetings and Bible Study Classes it exerts a wholesome Christian influence amoung the students.

Students are advised to unite with the association when they enter the college.

The ladies of the different churches in Auburn are organized into an auxiliary association to the Y. M. C. A. of the college.

LITERARY SOCIETIES

There are two literary societies connected with the Institute —the Wirt and the Websterian. Each has a hall in the main building. These societies hold celebrations on the evenings of Thanksgiving and 22nd of February.

To encourage the literary society the trustees have directed that a medal be awarded at Commencement to the member of each society who is both efficient and regular in attendance,

d who is the best debater. The method of selection is termined by the faculty.

SOCIETY OF THE ALUMNI.

The annual alumni oration is delivered by a member of the iety in Langdon Hall on Alumni Day, Monday of Commence- nt week.

OFFICERS OF THE ALUMNI ASSOCIATION.

utenant General Robert Lee Bullard, '82, Washington,). C. ----------Alumni Orator
omas Bragg 01, Auburn, Ala. ----------President
M. Martin '14, Auburn, Ala. ----------Sec'y. and Treas.

ENGINEERING SOCIETY.

All students in the courses of engineering and architecture eligible for membership in the Engineering Society. Meet- s are held twice a month, and the chief purpose of the iety is to promote personal fellowship among the members, l closer affiliation with practical engineers. Prominent gineers in all lines are invited to address the society from e to time upon subjects connected with their work. At er meetings the program is supplied by the student mem- s, thus giving opportunity for the students in one depart- nt to become somewhat familiar with the problems met h in other lines of engineering.

uitable quarters have been provided for the society in the v Broun Engineering Hall. No regular dues are required he members, but an occasional assessment is made to cover essary expenses.

ARCHITECTURAL ASSOCIATION.

The Architectural Association is open to all members of the ege who take work in the department of architecture. Bi- kly meetings are held in the architectural library, and ers presented on subjects of professional interest, not di- ly covered in regular courses; the discussions that follow always lively ones. Current articles in the technical jour- s are also taken up. Nothing could furnish a more striking mple of the enthusiastic attitude shown by architectural lents everywhere toward their chosen work, than these erings of the architectural association.

AGRICULTURAL CLUB.

he Agricultural Club was organized in 1907. All students rested in agriculture and the agricultural sciences are ible for membership. The members of the Agricultural ulty take an active part in the work of the club. Meetings

are held once a week, and an effort is made to promote interest in all lines of agriculture, to develop a spirit of good fellowship among the students of the course, and bring them in contact with prominent workers of the science as opportunity offers to present them on the regular program.

Meetings are held in the club rooms in Comer Agricultural Hall.

VETERINARY MEDICAL ASSOCIATION.

The Veterinary Medical Association was organized in 1907. The meetings are held bi-weekly in the veterinary building. Medical subjects are discussed by the members or by some invited speaker or member of the veterinary faculty. All students of the Veterinary College are eligible to membership. The objects of the association are fraternal, intellectual and cultural. The annual banquet of this association is an occasion of good fellowship for the students, faculty, and veterinary alumni.

GYMNASIUM AND ATHLETIC FIELD.

The new Alumni Gymnasium offers improved facilities for complete physical training in outdoor and indoor work. The college authorities attach due importance to the value of robust physical health. Military drill according to the Federal Law is required of all able-bodied students, and ample opportunity is also offered for work in the gymnasium and field sports. The aim of the athletic authorities is to develop, not only a set of highly trained athletic experts in particular fields of sports, but to interest each individual student in the care and development of the body through some form of athletic activity. While, therefore, every effort is made to maintain a high standard of athletic efficiency in various representative teams, every member of the "Auburn" student body is encouraged to gratify his love for games and sports, as well as to assimilate the "Auburn Spirit" in its intensest form; a spirit splendidly exemplified by the Alumni in making possible this handsome Gymnasium. This beautiful athletic home ranks "Auburn" as one of the best equipped colleges in the land for the development of the physical welfare of its students. Under present conditions it is possible for two thousand students to take physical exercises at the same time.

DRAKE FIELD—A new athletic field, named in honor of the Surgeon, Dr. J. H. Drake, has been provided for baseball, football, and track athletics. It is situated on the experiment station grounds near the gymnasium. It will be gradually beautified and equipped with necessary buildings and acommodations.

DISCIPLINE REGULATIONS.

ıe government of the college is administered by the presi- and faculty in accordance with the code of laws and reg- ons enacted by the trustees.

ıch student upon entering is required to sign his name in matriculation book and pledges himself to obey the rules regulations of the college.

l students are required to wear the prescribed uniform. tention to study and punctuality in attendance on recita- ; and all other duties are required of every student. Stu- s are prohibited from having in their possession arms or)ons not issued for the performance of military duty, and from using or causing to be brought into the college limits, ;icating liquors.

ıdents are not permitted to participate in any public enter- nents, or games, without previously obtaining the consent e faculty.

) student will be permitted without the approval of his nt or guardian, to take part in a public game of football.

) student who has failed in two or more subjects will be iitted to be absent from college for athletic contests or · purposes.

) Every absence from recitations or examination is graded

) When the grade of a student is lowered by reason of ıce, for which satisfactory excuse can be rendered, a al re-examination may be subsequently granted, and the ; made on the special re-examination alone is substituted hat previously received.

Only sickness, as reported by the surgeon, or absence ason of family sickness, or official or collegiate business, ;onstitute a satisfactory excuse for granting a re-examina-

ıen a student is called away from college by his parents easons other than those specified above, his zeros for ce are not removed.

tudent who, on surgeon's certificate, is excused from any ;ts will be required to substitute other work approved by ıculty.

; term grade of a student is the average of his daily and examination marks, found by giving due weight to the examination.

y privates of the senior class in full standing who are dates for graduation may be excused by the president all military drills, and also students over twenty-one

years of age *at the time of entering college* that are permitted to devote their time to one special study, as chemistry, agriculture, pharmacy, or engineering, provided the time devoted to drill is spent by them in laboratory work.

No student can remain an officer who receives during the session more than one hundred demerits.

BOARDING.

The students board at Smith Dining Hall or with families of the town of Auburn, thus enjoying all the protecting and beneficial influences of the family circle.

For each house an inspector is appointed, whose duty it is to report those who are guilty of any violation of order. The report of the inspector is made to the commandant at stated intervals.

Students, after selecting their boarding houses, are not permitted to make changes without obtaining permission from the president, and this permission is given only at the close of a term, except for special reasons approved by the parent.

MILITARY DRILL.

There are regular military drills each week, and all undergraduate students, not physically incapacitated to bear arms, are required to engage in these exercises; privates of the senior class are exempt.

The drills are short, and the duty involves no hardships. The military drill is a health-giving exercise, and its good effects in the development of the *physique* and improvement of the carriage of the cadet are manifest.

RELIGIOUS SERVICES.

Religious services are held every morning in the chapel.

All students, unless excused on the written request of parents for religious scruples, are required to attend these exercises, and also to attend the church of their choice on Sunday morning.

Opportunities are also offered for attending Bible classes every Sunday.

DISTINCTIONS AND HONORS.

Certificates of highest distinction and of distinction are given on the basis of credits, one credit being considered as the equivalent of one recitation per week for one term. Two hours of laboratory or shop work or drawing are counted as one hour of recitation. An undergraduate student taking less than an average of eighteen credit hours per term will not be eligible for distinction. Certificates will be awarded to those students who have not received more than forty demerits, and

comply with the scholarship requirements announced by
'aculty.
:mbers of the senior class who attain highest distinction
published as *Graduates with Highest Honor;* those who
n distinction are published as *Graduates with Honor;*
)rs who do not attain distinction, but who attain a grade
xty per cent or above are published as *Graduates.*

RECORDS AND REPORTS.

ily records of the various exercises of the classes are kept
ıe officers of instruction.
the close of each term and at regular intervals reports
g the grade made by each student are sent to the parent
ıardian.

EXAMINATIONS.

'itten examinations on the studies of the half-term are
by each professor during the months of October and
ıary. Each examination occupies one hour.
the end of each term written examinations, or written and
are held on the studies passed over that term.
:cial examinations are held only by order of the faculty,
n no case will private examinations be permitted.
dents falling below the minimum grade at the final exami-
ı can be promoted to full standing in the next higher
only on satisfactory examinations at the opening of the
:ession.
s required that every student who enters college shall
n through the examinations at the end of the term.
s of absence and honorable discharges will, therefore,
: granted within three weeks of the examination, except
'ovidential reasons.

RE-EXAMINATIONS.

:xamination for deficiencies incurred by students before
ng the senior class shall be set not later than the first
in April, except when deficiencies are being made up in
Seniors failing in any subject will have two oppor-
:s for removing the conditions.
:enior who fails on two final examinations will be re-ex-
d.
re-examination will be given seniors after the Saturday
Commencement.

HONOR SYSTEM.

ing the session of 1910-11 the Honor System, which for
had been in effect in the higher classes, was adopted by
tire student-body of the institution, to apply to all work

done in the class-room and on examinations. Under this system the student is pledged neither to give nor receive any assistance, whatsoever.

All students upon entrance subscribe to the Honor System as in force at this institution.

Proper regulations for administering the system have been adopted by the student-body.

The spirit of truth and honor, thus fostered in the examination room, is an efficient means of raising the scholarship, and tends to inculcate high ideals of honor among the students,

SCHOLARSHIPS.

The following scholarships and prizes have been established:

THE WILLIAM LEROY BROUN MEMORIAL SCHOLARSHIP OF $170, established by the Alumni Society, in memory of the late distinguished president of the Institute.

THE LIGON SCHOLARSHIP OF $170, established by Col. R. F. Ligon, Montgomery, Ala.

THE THOMAS SCHOLARSHIP OF $170, established by Judge William H. Thomas, Montgomery, Ala.

THE BALL SCHOLARSHIP OF $170, established by Mr. Fred S. Ball, Montgomery, Ala.

THE DUNKLIN SCHOLARSHIP OF $600, established by Mr. and Mrs. J. C. Street, Opelika, Ala., in memory of Prof. J. T. Dunklin, former professor of Latin in the college.

THE 1908 SCHOLARSHIP OF $150, established by the Class of 1908.

THE ALICE CARR SCHOLARSHIP OF $180, established for young women by the late Miss Alice Carr, Auburn, Ala.

THE RANSOM MEMORIAL SCHOLARSHIP OF $125, per year, established by the Alumni Association in memory of the late Prof. A. McB. Ransom, is available for students in the junior and senior classes of the course in chemistry and metallurgy.

THE JEWISH LOAN SCHOLARSHIP OF $1,000, established by a former student of the college.

TWO HENDERSON SCHOLARSHIPS OF $100 each, established by Judge W. L. Henderson, of Miller's Ferry, Ala.

THE SIDNEY SMITH MEMORIAL SCHOLARSHIP OF $100, established by his parents, Mr. and Mrs. Smith, Bessemer, Ala.

THE C. S. YARBROUGH SCHOLARSHIP OF $1,000 estblished by Dr. C. S. Yarbrough, Auburn, Ala.

A scholarship has been established for worthy musicians who are in need of assistance in defraying their college expenses.

THE ALABAMA FEDERATION LOAN SCHOLARSHIP OF $200 annually, established in 1917 by the Alabama Federation of Women's Clubs.

he conditions governing the award of this scholarship are ollows:

a) The beneficiary shall be a young woman resident of ama, between the ages of 18 and 24 years, prepared to enthe junior class.

b) She must be unable to complete her education without ncial assistance.

c) She must maintain the required standard in scholar-, attendance and conduct. Failing in any of these requirets, she may be replaced by another beneficiary appointed he same manner.

d) The beneficiary must be free from any other financial gation.

e) Repayment of this loan shall be made at the rate of .00 a year, without interest, the first payment becoming the first year after graduation or resignation.

f) The beneficiary shall signify her perfect understanding ese terms by signing a paper of agreement to be presented er by the President of the Alabama Polytechnic Institute.

l applications should be sent to the Chairman of the Fedion Scholarship Committee, Mrs. C. Clifford Adams, 3421 ow Avenue, Birmingham, Alabama.

e scholarships enumerated above are loan scholarships, ted to worthy young men and women, to be returned after uation.

HE ROBERT E. LEE MEMORIAL SCHOLARSHIP OF $100, an andonation for the son of a Confederate veteran, established he Children of the Confederacy of Alabama under the ices of Mrs. Mary G. Pickens.

HE UNITED DAUGHTERS OF THE CONFEDERACY LOAN SCHOLAROF $100, established in 1908 by the Alabama Division of the ed Daughters of the Confederacy to be awarded by a comee of the Division to a descendant of a Confederate veteran.

e above named scholarships and ten other scholarships administered by the Alumni Society. (*For information, ess H. M. Martin, Secretary.*)

HE GRAYDON SCHOLARSHIP FUND OF $3,000 established by amily of the late Augustus T. Graydon, of South Carolina, al alumnus of the class of 1914.

UTHERN RAILWAY LOAN SCHOLARSHIP OF $1,000, established e Southern Railway in memory of the late W. W. Finley, ident of the Southern Railway.

PRIZES.

HE THOMAS ESSAY PRIZE, a gold medal offered by Hon. iam H. Thomas, of Montgomery, Ala., for the best essay n undergraduate student of the college. The essay must

be written under the supervision of the department of English.

THE SOUTHERN INTERCOLLEGIATE ARCHITECTURAL COMPETITION in Senior Design is held in the Spring of each year by an association composed of the leading colleges of the South offering courses in architecture. Funds for suitable prizes are provided by the State Chapters of the American Institute of Architects. At the close of the competition the competing drawings are exhibited in turn at each of the schools taking part in it.

THE MILLER REESE HUTCHISON MEDAL FOR ENGINEERING WRITING: A gold medal of appropriate design is offered by Dr. Miller Reese Hutchison, of Orange, N. J., to the member of the senior class who does the most satisfactory work in the course of Engineering Writing. The work must be done under the supervision of the Department of Machine Design. 1918: *Llewellyn Goode Duggar,* Lee County.

THE MILLER REESE HUTCHISON MEDAL FOR INVENTIVE DESIGN: A gold medal of appropriate design is offered by Dr. Miller Reese Hutchison,of Orange, N. J., to the member of the junior class who does the most satisfactory work in the course of Inventive Design. The work must be original and must be done under the supervision of the Department of Machine Design. 1918: *Lansing Taylor Smith, Jr.,* Calhoun County.

THE ORATORICAL PRIZE, medal to that member of the junior class who composed and delivered the best oration on junior class day of Commencement.

THE J. B. CLARK DEBATER'S MEDAL, established in 1919 by J. B. Clark, Secretary Board of Examiners, State Department of Education, Montgomery, Alabama, to be awarded annually to the best debater in the junior class.

THE ORATORICAL PRIZE, for the Annual Inter-Literary Society Contest, February 22.

SOPHOMORE MEDAL, Best Debater, 1917: *Euel Howard Gentry,* Bibb County.

FRESHMAN MEDAL IN DECLAMATION for annual contest, May 1st. 1918: *Joseph Meyer Holzman,* Dallas County.

PRIZE FOR BEST DEBATER, a medal given annually by the Board of Trustees to the best debater in the Wirt and Websterian Literary Societies each. 1918: *Wirt—Charles Wesley Edwards,* Coffee County; *Websterian—Orrville Butler Hodges,* Madison County.

BEST DECLAIMER IN LITERARY SOCIETIES. *Wirt—Joseph Chandler Burton,* Marion County; *Websterian—Angus Atkinson Smith,* Geneva County.

REGIMENTAL MEDAL, for the best drilled soldier.

PRIZE FOR BEST DRILLED COMPANY, a sword given by Board of Trustees.

LIBRARY.

LIBRARIAN, MISS MARY MARTIN.

ASSISTANT WILSON.

ASSISTANT MISS SMITH.

The beautiful Carnegie Library building is constructed of ɔne and pressed brick. The reading room is 80 x 40 feet, ɹd the building is equipped with every convenience. It is ghted by electricity and heated by steam. The capacity of e stack room is 60,000 volumes. The library now ntains 28,000 volumes, including valuable reference and ientific books, with select editions of standard authors, and ıers suitable for students, carefully and recently selected. is kept open eight hours daily for the use of students as a ıding room and is thus made an important educational ıture.

THE O. D. SMITH COLLECTION.

The library of the late Prof. O. D. Smith was presented the college by Mrs. O. D. Smith, and is preserved as a morial to his long and distinguished services to the college.

THE F. D. PEABODY MEMORIAL ROOM.

Through the generosity of Mr. George Foster Peabody, New rk City, an annual fund of fifty dollars, income from a per- nent investment, is available for the purchase of books and niture for the "F. D. Peabody Memorial Historical Semi- ry." F. D. Peabody, Esq., was a distinguished graduate of Class of 1876.

THE W. D. TAYLOR MEMORIAL COLLECTION.

The engineering library of the late W. D. Taylor, chief engi- ɐr of the Chicago and Alton Railway, was bequeathed by him the Alabama Polytechnic Institute, and is preserved by the llege as a memorial to this distinguished alumnus. Mr. ylor was a graduate of the Class of '81, and was regarded one of the leading civil engineers of the United States.

MUSEUM.

The Museum occupies a large room in the third story of the in Building. It is provided with suitable cases, and is ıipped with valuable specimens and models of an instructive ıracter.

LABORATORY FEES.

Each student in the following courses is required to pay the laboratory fee specified:

Chemical laboratory	$10.00
Pharmacy laboratory	5.00
Electrical engineering laboratory	5.00
Mechanical engineering laboratory	5.00
Veterinary medicine (dissecting fee)	10.00
Dairy laboratory	3.00
Soils laboratory	3.00
Horticultural laboratory	1.00
Botanical laboratory	1.50 to 2.50
Civil engineering (surveying)	1.00
Civil engineering (road materials laboratory)	1.00
Entomology	1.00
Zoology	1.00

Special students in laboratory work will pay additional fees for each separate division of work, and will be charged with all material consumed in experiments.

CONTINGENT FEE.

A contingent fee of $5.00 is required to be deposited by each student on matriculation to cover any special or general damage to the college property for which he may be liable. General damages are assessed on the body of students.

At the close of the session the whole of the contingent fee or the unexpended balance, is refunded to the student.

FUNDS OF STUDENTS.

Parents or guardians are advised to deposit with the treasurer of the college all funds desired for sons or wards, whether for regular charges, college fees or board, or for any other purpose. It is the duty of this officer to keep safely all funds placed in his hands and to pay all expenses incurred by the students, including board, books, etc.

The college cannot be held responsible for the expenses of a student unless the funds are deposited under specific instructions from the parent or guardian to the treasurer. No student should be permitted to have a large amount of pocket money, as it brings only trouble, and encourages idleness.

EXPENSES.

There is no charge for tuition for a resident of Alabama.

Tuition for students not residents of Alabama is $20.00 per session, unless remitted by the trustees to worthy students upon the recommendation of the faculty. A student once entering as a non-resident will not be permitted to claim residence un-

ss his parent or guardian becomes a resident or tax payer on roperty in Alabama. Tuition for non-residents is remitted to ns of ministers of the Gospel.

The remission of this tuition fee to non-resident students ill be granted in the form of a free scholarship for the suc-eding year to those who obtain a distinction the preceding ar, or who, by reason of merit, are deemed worthy.

Board, including lodging, fuel, and lights, is furnished at 0.00 to $25.00 per month.

AMOUNT OF DEPOSIT.

All fees, including laboratory fees, are payable on matricula-tion. *By order of the Trustees a matriculation fee of* $12.00 *retained from deposits of students who withdraw. To stu-nts who withdraw after one month's residence in college ly the remainder of the laundry fee and the contingent fee, s charges, may be returned; no laboratory fee may be re-rned; after the beginning of the third term only the contin-nt fee may be returned.*

Fees to be paid on entrance:

cidental	$ 5.00	
brary	2.00	
rgeon	5.00	
ntingent	5.00	
hletic	6.00	
undry fee for session	13.00	
r a resident of Alabama	$36.00	$36.00
ition ron-resident		20.00
r a non-resident		$56.00

THESIS.

Each applicant for a degree is required to write and submit the faculty a thesis, or oration and read or deliver the same Commencement, if required by the faculty.

There may be presented with the approval of the professor charge, a carefully written report of special work done in aboratory, showing independent investigation and discussion some subject.

t must be given to the professor by the first of May. The bject must be submitted for approval by January 1st.

SURGEON.

The Surgeon is required to be present at the college daily, visit at their quarters the cadets that are reported sick, and e all requisite medical attention without other charge than

the regular surgeon's fee, paid on entering the Institute.

An infirmary has been established and equipped.

LOCATION.

The Institute is situated in the town of Auburn, fifty-nine miles east of Montgomery, on the line of the Western Railway of Alabama.

The region is high and healthful, noted for its general good health and freedom from malaria, having an elevation of eight hundred and twenty-six feet above tidewater. By statute of the State the sale of spirituous liquors and the keeping of saloons of any kind are forbidden.

ACADEMIC YEAR.

The academic year for 1919-20 commences on Wednesday, September 10, 1919, and ends on Tuesday, June 1, 1920, which is Commencement Day.

It is divided into three terms: The first term extends from the opening of the session to December 19th; the second term begins January 2nd, and ends March 22nd, the third term continues to the end of the session.

REGISTER

MILITARY ORGANIZATION

SESSION 1918-19

RESERVE OFFICERS' TRAINING CORPS

President
CHAS. C. THACH

mmandant and Professor of Military Science and Tactics
MAJOR ISAAC SPALDING, F. A.

Assistant Professor of Military Science and Tactics
Assistant Commandant and Adjutant
CAPTAIN LOUIS J. FORTIER, F. A.

Supply Officer
CAPTAIN VINCENT L. O'CONNOR, F. A.

Senior Instructor of Field Artillery
CAPTAIN ROBERT H. CROSBY, F. A.

Senior Instructor of Infantry
CAPTAIN ALBERT E. BARRS, Inf.

Senior Instructor of Engineers
CAPTAIN STANLEY E. BORLESKE, C. E.

Senior Instructor of Physical Training
CAPTAIN JAMES L. ORR, F. A.

Assistant Instructor of Infantry
FIRST LIEUTENANT J. C. GURREN, Inf.

Assistant Instructor of Field Artillery
SECOND LIEUTENANT HENRY C. FLOYD, F. A.

Surgeon
DR. J. H. DRAKE

Assistant Instructors

Lieutenant Cyrus A. Ashcraft.
Lieutenant Robert M. Beasley.
Lieutenant Anthony J. Bowab.
Lieutenant Richard C. Bradford.
Lieutenant Thomas L. Bradley.
Lieutenant Joseph C. Burton.
Lieutenant Stuart H. Dent.
Lieutenant George W. Duncan.
Lieutenant Edwin W. Freeman.
Lieutenant James M. Fullan.
Lieutenant Edmond P. Garrett.

Lieutenant William F. Godwin.
Lieutenant Milton O. Howle.
Lieutenant Charles N. Johnston.
Lieutenant George B. Komp.
Lieutenant Jack M. Linx.
Lieutenant James F. Maury.
Lieutenant Frank S. McFaden.
Lieutenant George A. Mattison.
Lieutenant Earl C. Nichols.
Lieutenant John Oliver.
Lieutenant William H. Philpot.
Lieutenant Silas C. Rutland.
Lieutenant Claude Sizemore.
Lieutenant Ernest G. Small.
Lieutenant William E. Snuggs.
Lieutenant Norman D. Spann.
Lieutenant Cohen E. Stapp.
Lieutenant Barclay Storey.
Lieutenant Charles P. Storrs.
Lieutenant Robert E. Taylor.
Lieutenant Joe Thomas.
Lieutenant Edward H. Todd.
Lieutenant John H. Trapp.
Lieutenant Roy H. Turner.
Lieutenant James W. Vaiden.
Lieutenant Carl E. Wideberg.
Lieutenant John E. Wideberg.
First Sergeant LeRoy L. Self.
Supply Sergeant Joseph C. Kendrick.

Regimental Staff

Cadet Captain Philip W. Pelts, Adjutant.
Cadet Captain Elisha F. Pollard, Personnel Adjutant.
Cadet Captain Solomon J. Nadler, Supply Officer.
Cadet 2nd Lt. Raymond B. Kelly, Asst. Supply Officer.

Regimental Non-Commissioned Staff

Cadet James D. Ratchford, Regimental Sergeant Major.
Cadet Henry C. Snellgrove, Regimental Supply Sergeant
Cadet William H. Tucker, Color Sergeant.
Cadet Glover O. Waites, Color Sergeant.

First Battalion

Cadet Major Thomas B. Chambers.
Cadet First Lieutenant Angus A. Smith, Adjutant

Cadet Captains

ıpany A	Company B	Company C	Company D
١. Wright	E. E. Terry	J. P. Sullivan	E. A. Caldwell

Cadet First Lieutenants

:. Tisdale	J. W. Tidmore	W. C. Edwards	P. Frederick

Cadet Second Lieutenants

:rain	W. L. Holmes	H. Carder	M. B. Howard

Cadet First Sergeants

:ook	J. H. Anderson	W. E. Harrell	L. T. Smith

Cadet Sergeants

. Alsobrook	J. B. DeRamus	J. M. Gondran	O. B. Hodges
. Boyd	F. W. Calhoun	C. E. Floyd	R. M. Johnson
:. Brice	R. A. Chambers	G. H. Grisham	M. W. Kyser
. Allen	B. J. Coplan	J. T. Frazer	H. A. Caldwell
V. Bridges			

Cadet Corporals

. Barksdale	W. Crain	C. W. Edwards	N. L. Howard
'.French,Jr.	G. S. Cooper	L. J. Gunter	J. M. Howarth
. Gardner	G. L. Clark	S. G. Harper	J. L. Jimmerson
. Hayley	M. T. Crymes	J. P. Hall	J. B. Kantor
. Foster	O. G. Crow	I. B. Gunter	J. S. Kernachan
. Gaines	W. R. Draughon	C. M. Gray	H. S. Keller
Genius	R. B. Deason	E. W. Harvey	
	L. L. English	A. F. Griggs	

Second Battalion

Cadet Major Charles H. Adams
Cadet First Lieutenant Robert H. Hamner, Adjutant

Cadet Captains

pany E	Company F	Company G	Company H
homas	E. B. Crawford	W. M. Mobley	F. H. Cutts

Cadet First Lieutenants

.. Pipkin	L. C. Watson	M. L. Perdue	L. C. Vaughn

Cadet Second Lieutenants

. Bryant	A. L. Jones	G. W. Jones	W. M. Little

Cadet First Sergeants

Gentry	H. Walker	E. C. Johnson	A. M. Kearly

Cadet Sergeants

L. C. LeBron
A. B. Miller
R. L. Martin
A. S. Martin
C. S. Peter
W. S. Owsley
J. B. Pilcher
W. S. Halsey
W. J. Samford
J. D. Samford
F. S. Stubbs
L. R. Wright
J. S. Woodson
C. L. Young
E. C. Taylor

Cadet Corporals

J. N. McLane
H. S. Leach
T. B. Lee
F. U. Leonard
F. A. Madox
A. V. Meigs
E. S. McCree
F. S. Morgan
J. M. Oliver
O. A. Nelson
G. W. Pearson
A. O. Riser
R. C. Rogers
R. L. Salter
E. H. Sims
C. C. Warren
A. K. Wood
J. P. Trotter
J. B. Townsend
W. A. Whatley
A. M. Woodall
E. E. Vandegrift
G. R. Wood

THE CADET BAND

Session 1918-19

A. L. THOMAS, Bandmaster

Military Officers

G. A. Mattison ---------- ----------Lieutenant
J. M. Linx ----------Lieutenant
J. W. Pruett ----------Cadet Captain
C. J. Perryman ----------Sergeant and Drum Major

Musicians

Cornets

L. G. Duggar
G. L. Foster
G. E. Haslam
E. Keenon
J. Memoli
J. M. Merritt
G. R. Pollock
C. W. Sutherlin

Altos

B. M. Cherry
L. W. Conard
G. M. Humphries
C. E. Morris
J. W. Pruett
U. V. Whipple

Drums

B. W. Clendinen
R. L. Glenn
J. L. Jenkins
J. R. Moon
L. Newman
R. Proctor
H. Spriggs

Basses

G. A. Mattison
L. P. Hodges

Baritones

A. M. Dowling
G. R. Hurd
R. P. Harmon

Trombones

W. T. Abbott
F. L. Brittain
S. H. Dent
C. G. Harvey
H. D. Jones
W. W. Quarles
A. H. Speigner
T. B. Threatt

Piccolo

J. M. Linx

Clarinets

R. S. Allen
J. P. Bailey
D. Haynie
M. A. Martin
P. E. Memoli
A. C Moye
J. H. McKinley
B. L. Ward
F. Brasswell
M. Greenberg
J. F. Smith
J. F. Tribble

Saxophones

F. L. Croker
J. D. Foster
W. L. Riley
M. H. Nesbitt
H. K. Stephenson
G. B. Warren
F. D. Warren

dets of the graduating class who were reported to the tant General, U. S. Army, as having ranked the highest in ilitary Department:

1889
. C. Dunstan
Crenshaw
Burr

890
Milstead
Bivins
Emory

891
Baker
Johnston
Bivins

892
Dobbin
Jones
Brown

893
)umas
Smith
Webb

894
Andrews
McKeown
Dorsey

895
Coleman
Smith
Gammon

896
Alexander
Fleming
Williams

897
Clark
Holley
Mitcham

898
Clark
B. Ransom
Haralson

1899
I. F. McDonnell
A. H. Feagin
T. W. Wert

1900
E. M. Mason
H. P. Powell
C. W. Nixon

1901
A. F. Jackson
J. D. Foy
P. S. Haley

1902
W. D. Willis
J. E. D. Yonge
J. B. Garber

1903
H. E. Davis
H. M. Yonge
T. J. Dowdell

1904
J. McDuffie
B. L. Shi
Geo. Dunglinson, Jr.

1905
R. P. Boyd
R. H. McCulloh, Jr.
J. H. Paterson

1906
W. H. Foy
F. H. Mohns
M. A. Frazer

1907
N. B. McLeod
W. L. Perdue
G. F. Lipscomb

1908
S. A. Ellsberry
C. M. Howard
R. H. Liddell

1909
J. W. Powell
S. H. Richardson
T. Beasley

1910
D. M. Clements
C. C. Yonge
J. M. Spearman

1911
J. E. Davis
J. J. Cater
G. Lothrop

1912
S. R. Cruse
C. C. Thach, Jr.
F. L. Jenkins

1913
R. A. McGinty
D. L. Taylor
H. C. Hanlin

1914
R. E. Herring
W. B. Tisdale
E. F. Barry

1915
D. D. Gibson
C. A. Donehoo
W. F. Littleton

1916
E. W. Smith
C. E. Newman
A. E. Hayes

1918
J. H. Witherington
J. A. Strozier
C. B. Crow

GRADUATES

CLASS OF 1918.

DEGREES.

Bachelor of Science.

Roger William Allen ..... Jefferson
William Wallace Allen ..... Florida
Jerome Cochran Ard ..... Dale
James Oliver Avery ..... Marion
Marion Russel Avery ..... Franklin
Berta Leon Balch ..... Macon
Costa Boone Barker ..... Lee
Forest Reynolds Birchfield ..... Jefferson
Madison Leroy Bonner ..... Clay
Charles Jacob Brockway ..... Sumter
Ollie Clifton Bryan ..... Coffee
Gurley Everett Burgin ..... Jefferson
George Larkin Burleson ..... Marion
Ralph Akin Carroll ..... Lee
Elwyn Allen Cary ..... Lee
William Edmond Conger ..... Louisana
John Stephen Neal Davis, Jr. ..... Georgia
Charles Edwin Doughtie, Jr. ..... Georgia
Richard Joseph Ducote ..... Mobile
Elmer Odell Duffey ..... Jefferson
Llewellyn Goode Duggar ..... Lee
Yndalecio Andres Elizondo ..... Mexico
McKendree Heard Floyd ..... Lee
James Thomas Fowler, Jr. ..... Houston
William Edward Frawley, Jr. ..... Jefferson
Ernest Vossie Frederick ..... Florida
James Tolbert French ..... Pike
William Arnold Guess ..... Mississippi
Joseph Henry Hamilton ..... Jefferson
B. H. Haynes, Jr. ..... Clay
Lewis Harris Heyman ..... Tennessee
Samuel White Hill ..... North Carolina
John Thomas Hudson, Jr. ..... Tennessee
Samuel Robert Huey ..... Jefferson
David Charles Jimmerson ..... Lee
Elizabeth McTyeire Johnson ..... Lee
Lucius Wiley Johnson ..... Tuscaloosa
Robert Dawson Jordan ..... Crenshaw
Robert Thomas Kernachan ..... Colbert
Albert Johnson Kirby ..... Jackson
Benjamin Terrell Kirby ..... Georgia
Augustus Theodore Levie ..... Coosa
George Ernest Lumpkin ..... Marshall
Richard Rose McAdory ..... Jefferson
William Cook McKay ..... Montgomery
Oscar Lafayette Martin ..... South Carolina
Oliver Norfleet Massengale ..... Elmore
James Belser Mayes, Jr. ..... Georgia
John Herbert Murray ..... Escambia
James Rembert Nesbitt ..... Jefferson
Frank Wilson Parker ..... Kentucky

ıs Albert Peterson ..... Coosa
ɔn Avery Phillips ..... Clay
ry Leland Reynolds ..... South Carolina
Posey Robertson ..... Fayette
iam Johnson Ross ..... Calhoun
ı James Ryan ..... Tennessee
Henry Schultz, Jr. ..... Jefferson
rt Sidney Scott ..... Walker
ı McElroy Selman ..... Coosa
ı Andrew Shealy ..... Louisiana
iam Clem Sills ..... Wilcox
ɔrt Paul Simmons ..... Dale
nas Andrew Sims ..... Walker
ı Marion Sparrow ..... Lee
Alan Strozier ..... Georgia
iam Woodward Sullivan ..... South Carolina
er Thompson ..... Randolph
iam Rufus Turnipseed ..... Bullock
les Spencer Warren ..... Montgomery
Harrison Watson ..... Lee
a Watt ..... Lee
Victor Wellons ..... Georgia
am Benjamin West ..... Cherokee
ɔs Henry Witherington ..... Conecuh
am Herman Withington ..... Jefferson
Fletcher Yarbrough ..... Houston

GRADUATE IN PHARMACY.

rt Turpee Ashurst, Jr. ..... Tallapoosa
y Grady Buchanan ..... Tennessee
Rufus Evans ..... Georgia
Benson Patterson ..... Baldwin
nas Simes ..... Marshall
n LeGrand Wood, Jr. ..... Montgomery

DOCTOR OF VETERINARY MEDICINE.

nas Walter Boman ..... Cleburne
ard Taylor Compton ..... Marengo
cis B. Cook ..... Choctaw
er Mitchell Dennis ..... Chilton
am Francis Donahue ..... Lee
Hart Fussell ..... Geneva
R. Gissendanner ..... Dale
dcus Lamar Glenn ..... South Carolina
Howard Herron ..... Lee
rt Russell Jeter ..... South Carolina
ɔn Monroe Jowers ..... Elmore
Jesse Miller ..... Clark
ɔ William Murray ..... Mobile
am Sumter Reynolds ..... Pike
s Ralph Sullivan ..... Montgomery
her Leroy Vinson ..... Lee
ɔtt Sompoyrac Winters ..... South Carolina

POST GRADUATE DEGREES.
MASTER OF SCIENCE.

cs L. Isbell ..... Lee
ence Marvin McRae ..... Chambers
Parker Shaffer ..... Tallapoosa
Meriwether Ward ..... Greene

PROFESSIONAL DEGREES IN COURSE.
CIVIL ENGINEER.

Alan Benjamin Pimm ..... Florida

ELECTRICAL ENGINEER.

John Andrew Douglas ..... Mobile

MECHANICAL ENGINEER.

Walter Hugh Roberts ..... Pittsburgh

DEGREES FOR PROFESSIONAL WORK.
MECHANICAL ENGINEER.

Thomas Morris Francis ..... Montgomery

CATALOGUE OF STUDENTS

SESSION 1918-1919

GRADUATE STUDENTS.

Roger William Allen ..... Jefferson
Yndalecio Andres Elizondo ..... Mexico
McKendree Heard Floyd ..... Lee
William John Howard ..... Montgomery
William Cook McKay ..... Montgomery
Oscar Lee McMurry ..... Franklin
Jule Rembert Nesbitt ..... Jefferson
Cleveland Gillespie Sharpe ..... Morgan
Richard Hartwell Thach ..... Lee
Esther Thompson ..... Randolph

SENIOR CLASS.

Charles Harris Adams ..... Dale
Robert Stanton Allen ..... Jackson
Simeon Arthur Allen ..... Shelby
Adrian Fuller Alsobrook ..... Chambers
James Hugh Little Anderson ..... Calhoun
Daniel Garland Barnes ..... Dale
Helen Louise Blasingame ..... Lee
Anthony Joseph Bowab ..... Escambia
Richard Courtlandt Bradford ..... Cherokee
Marvin Earle Bryant ..... Baldwin
Andrew Alonzo Burke ..... Lee
Europe Alexander Caldwell ..... Jackson
Homer Carder ..... Jefferson
Colin Eric Carlovitz ..... Mississippi
Thomas Browning Chambers ..... Limestone
Eugene Collier ..... Morgan
William Cook, Jr. ..... Walker
Benjamin Jacobs Coplan ..... Jefferson
Desmond Crain ..... Wilcox
Eugene Benson Crawford ..... Macon
Frederick Harder Cutts ..... Georgia
Lewis Schuessler Dowdell ..... Chambers
George Webster Duncan, Jr. ..... Lee
William Correll Edwards ..... Chilton
Philip Frederick ..... Georgia
Edwin Wills Freeman ..... Florida
James Michael Fullan ..... Lee
Edmond Peter Garrett ..... Limestone
Euel Howard Gentry ..... Bibb
James Needham Gilmer ..... Choctaw
William Francis Godwin ..... Georgia
Joseph McCormick Gondran ..... Louisiana
Paul Stanley Grimes ..... Georgia
Glynn Hightower Grisham ..... Limestone
Andrew Byron Hall ..... DeKalb
Walter Elbert Harrell ..... Lowndes
Howell Payne Hines ..... Lee
William Louis Holmes ..... Houston
John Edward Howell ..... Dale
Elisha Cleveland Johnson ..... Georgia
Arthur Lafayette Jones ..... Calhoun

Grady Whittle Jones ..... Escambia
Archie Monroe Kearley ..... Monroe
Raymond Boone Kelly ..... Jefferson
Henry Thomas Killingsworth ..... Georgia
William Lithgow Liddell ..... Wilcox
Andrew Dowdell Lipscomb ..... Lee
William Mem Little ..... Georgia
Forrest Whitlock McMeans ..... Jefferson
Merlin Angelo Martin ..... Mobile
George Augustus Mattison, Jr. ..... Clay
Willard Mitford Mobley ..... Jefferson
Solomon Joseph Nadler ..... Etowah
Earle Cochran Nichols ..... Clarke
Marie Nold (Irregular Course) ..... Washington, D. C.
Phillip William Pelts ..... Mississippi
Marvin Lucian Perdue ..... Coffee
Capers Jones Perryman ..... Jefferson
Charles Scudder Peter ..... Shelby
William Henry Philpot, Jr. ..... Macon
Wilbur Arnold Pipkin ..... Florida
Elisha Frederick Pollard ..... Crenshaw
Jefferson William Pruett ..... Coosa
Joel Marbury Rainer ..... Bullock
Hickman Riley ..... Jefferson
Silas Clifford Rutland ..... Georgia
Albert Sidney Scott ..... Lee
Leroy Lafayette Self ..... Blount
Alma Smith ..... Lee
Angus Atkinson Smith ..... Geneva
Lansing Taylor Smith, Jr. ..... Calhoun
Henry Clay Snellgrove ..... Marshall
Norman Dantzler Spann ..... Houston
Cohen Elbert Stapp ..... Pickens
William Richmond Stephens ..... Lee
Barckley Augustus Storey ..... Talladega
John Patrick Sullivan ..... South Carolina
Edwin Emmett Terry ..... Madison
John Thomas ..... Marengo
James Wallace Tidmore ..... Hale
Lionel Earle Tisdale ..... Florida
William Henry Tucker ..... Chambers
Lewis Candler Vaughn ..... Georgia
Glover O'Neal Waits ..... Covington
Felix Augustus Walker ..... Russell
Harold Walker ..... Jefferson
Lynn Casey Watson ..... Jefferson
John Bonard Wilson ..... Marshall
George Alfonso Wright ..... Lee
George Herbert Wright ..... Lee

JUNIOR CLASS.

James Harvey Allen ..... Calhoun
Cyrus Andrew Ashcraft ..... Lauderdale
Charles Randolph Barksdale, Jr. ..... Bullock
Robert Marion Beasley ..... Lee
Harold Alfred Bowron ..... Jefferson
Thomas Lyons Bradley ..... Jefferson
Warren Calvin Brice ..... North Carolina
Oma Wesley Bridges ..... Macon
Joseph Chandler Burton ..... Lauderdale
Hamlin Alexander Caldwell ..... Jackson

ederick William Calhoun ..... Jefferson
ıymond Austin Chambers ..... Limestone
:orge Little Clark ..... Crenshaw
:orge Samuel Cooper ..... Lee
'arren Crain ..... Wilcox
sler Gilbert Crow ..... St. Clair
arvin Trowbridge Crymes ..... South Carolina
dward Pilate Culpepper ..... Henry
homas Micajah Culpepper ..... Georgia
ichard Buey Deason ..... Jefferson
tuart Herbert Dent ..... Barbour
ohn Bealie DeRamus ..... Chilton
ngus Mancill Dowling ..... Barbour
Wells Roney Draughon ..... Geneva
Charles Wesley Edwards ..... Coffee
Lester Lamar English ..... Morgan
Lecil Verland Evans ..... Lamar
Charles Ewell Floyd ..... Lee
George Lunsford Foster ..... Lee
James Douglas Foster, Jr. ..... Lee
John Thomas Frazer ..... Chambers
Henry Clarke Frazer ..... Chambers
William Williams French, Jr. ..... Jefferson
Robert Calloway Gaines ..... Clay
Junius Roach Gardner, Jr. ..... Jefferson
Walter Hayne Gordy ..... Louisiana
Harless Grace ..... Walker
Charles Merrill Gray ..... Walker
Alfred Flournoy Griggs ..... North Carolina
Isham Belle Gunter ..... Lee
Lindsey Jesse Gunter ..... Lee
Jesse Pankey Hall ..... Etowah
Sidney Guenveur Harper ..... Montgomery
Creshull Charles Harrison ..... Florida
Ernest Westcott Harvey ..... Montgomery
Arthur Lee Hayley, Jr. ..... Walker
Oliver Ripley Head ..... Shelby
Harold. Herzberg ..... Chambers
Orville Butler Hodges ..... Madison
Nicholas Leon Howard ..... Autauga
John Monroe Howarth ..... Chambers
Milton Oliver Howle ..... Jefferson
Cecil Daniel Hughes ..... Calhoun
Jerry Leslie Jimmerson ..... Lee
Richard Malcolm Johnston ..... Jefferson
Edward McCurdy Jones ..... Lee
Joseph Benjamin Kantor ..... Jefferson
John Simmons Kernachan, Jr. ..... Lauderdale
George Barnes Komp ..... Mississippi
Melton Winship Kyser ..... Elmore
Edwin Bragg Lancaster ..... Sumter
Howard Stuart Leach ..... Montgomery
Lamar Cantelou Lebron (Irregular Course) ..... Elmore
Thomas Benjamin Lee ..... Barbour
Frank Underwood Leonard ..... Jefferson
Edmund Simeon McCree ..... Tallapoosa
Jesse Newman McLane ..... Florida
Fontaine Alexander Maddox ..... St. Clair
Alfred Shelby Martin ..... Jefferson

James Fontaine Maury, Jr. ..... Mobile
Archie Vernon Meigs ..... Tallapoosa
Janssens Joseph Melancon ..... Louisiana
Amos Bender Miller ..... Cullman
Jacob Robert Moon ..... Coosa
Frank Stewart Morgan ..... Dallas
Oscar Albin Nelson ..... Jefferson
James McCarty Oliver ..... Jefferson
James Cornelius O'Neal ..... Mobile
Winfield Scott Owsley ..... Elmore
Frank Penn Page ..... Houston
Gerald Walstein Pearson ..... Georgia
James Byrd Pilcher ..... Houston
Ernest Eugene Price ..... Talladega
Adam Olin Riser, Jr. ..... Jefferson
Robert Clyde Rogers ..... Escambia
Roy Lester Salter ..... Jefferson
James Drake Samford ..... Montgomery
William James Samford ..... Lee
John Philip Shealy ..... Houston
Claude Sizemore ..... Fayette
Ernest Gustave Small ..... Dallas
William Elbert Snuggs ..... Randolph
Charles Paddock Storrs ..... Elmore
Francis Seaborn Stubbs ..... Georgia
Dana Gibson Sturkie ..... Lee
Edgar Cecil Taylor ..... Crenshaw
Joe Thomas ..... Tallapoosa
Edward Hofford Todd ..... Jefferson
James Barnett Townsend ..... South Carolina
John Herman Trapp ..... Mississippi
Joseph Pierce Trotter ..... Baldwin
Roy Hope Turner ..... Tallapoosa
Himan Urdong ..... Jefferson
Erskine Eugene Vandegrift ..... St. Clair
Chester Clyde Warren ..... St. Clair
George Butler Warren ..... Morgan
James Clarence Watson ..... Geneva
Carl Eric Wideberg, Jr. ..... New Jersey
George Raymond Wood ..... Baldwin
Aaron Montgomery Woodall ..... St. Clair
Arthur Paschal Woodfin ..... Perry
Leonard Rudolph Wright ..... Bibb
Calvin Locke Young ..... Texas

SOPHOMORE CLASS.

Joe Morris Acker ..... Etowah
David Clopton Adams, Jr. ..... Morgan
James Abner Allen, Jr. ..... Lee
Marcus Ralph Barker ..... Lee
Wyss Leo Barker ..... Lee
Herbert Bernard Barks ..... Jefferson
Samuel Thomas Barnes, Jr. ..... Mobile
Edgar James Barnett ..... Houston
Frank Madison Barnett ..... Bullock
Roy Samuel Beall ..... Crenshaw
A. D. Bell ..... Talladega
Franklyn Evelyn Bell ..... Florida
Edwin Stratford Bennett ..... Montgomery

Harold Lyle Biggin ..... Lee
Daniel Eugene Bivins, Jr. ..... Florida
Ralph Carl Blach (Irregular Course) ..... Jefferson
Alfred DeWitte Boyd ..... Lee
Jacob Murphree Boyd ..... Pike
Charles Henry Bradley ..... Mobile
Charles Collier Bright ..... Crenshaw
Francis Lewis Brittain ..... Georgia
Daniel Sharpe Brock ..... Sumter
John Morgan Brown ..... Lee
Paul Jones Brown ..... Morgan
Bert Nathan Bryan ..... Georgia
James Lake Buchanan ..... Colbert
Bartow Bullard ..... Coffee
John Kavanaugh Bullock ..... Montgomery
Henry Bernard Burke ..... Florida
Joe Leland Burnett ..... Jefferson
William Fitzhugh Byrd ..... Jefferson
Norman Glenn Camp ..... Georgia
William A. Campbell ..... Macon
Lamar Cantelou ..... Elmore
William Cardwell Chambers ..... Limestone
Ralph Coleman Christopher ..... Choctaw
Leigh Mallett Clark ..... Crenshaw
Paul Clark ..... Walker
Benjamin White Clendinen, Jr. ..... Houston
Edwin Pierce Clyatt ..... Russell
Rodney Copeland ..... Macon
Joseph Monroe Corry ..... Walker
William Madison Cosper ..... Colbert
David Purser Cowen ..... Jefferson
Lawrence Welch Crane ..... Jefferson
John Paul Creel ..... Jefferson
Francis Lauren Crocker ..... Walker
Roland Anderson Crump, Jr. ..... Montgomery
Edward Fletcher Darby ..... Jefferson
Clifford Gilmore Davis ..... Walker
Clyde Odeska Davis ..... Tallapoosa
Albert Perry DeShazo ..... Jefferson
Frank Perry Dobson ..... Talladega
David Merrick Dowdell, Jr. ..... Florida
Madie Dowdell ..... Lee
Paul Lamar Draper ..... St. Clair
Joe Driver ..... Randolph
Clyde Dunn ..... Lamar
William Joseph Dunn ..... Conecuh
William Cornelius Eppes, Jr. ..... Marengo
James Lewis Evans ..... Jefferson
Joel Daniel Feagin ..... Bullock
Wayne Arnold Finger ..... Mississippi
James Lavoisier Fulghum ..... Florida
Melville Gray Fuller ..... Madison
Louis McLean Funderburg ..... Jefferson
Leonard Stephen Furr ..... DeKalb
William Henry Gardner ..... Pickens
Henry Stanley Genius ..... Louisiana
John Bennett Gibson ..... Marshall
Lewis Gudenrath Goldstein ..... Tennessee
Garner Ashby Goodbread ..... Dale
George Madison Haas ..... Mobile

Cecil James Steele ..... Franklin
James Lee Steenhuis ..... Jefferson
Henson Knowles Stephenson ..... Dallas
William Allen Stevenson ..... Macon
Roy Leonard Thomas ..... Limestone
Thomas Lee Tidmore ..... Hale
John Vernon ..... Jefferson
James Dallas Wade, Jr. ..... Montgomery
Marion Newman Walker ..... South Carolina
Preer Walton ..... Georgia
Dewey Clyde Waits ..... Jefferson
Birma Leon Ward ..... Houston
Luther Boardman Watson ..... Wilcox
Joseph Tee Watt, Jr. ..... Lee
Edgar Reid Watts ..... Walker
John Dayton Waugh ..... Montgomery
John Louis Whatley ..... Lee
William Whatley ..... Lee
Ulysses Virgil Whipple, Jr. ..... Georgia
John Eric Wideberg ..... New Jersey
David Dewey Weir ..... Mississippi
Ernest Albert Wilkinson ..... Autauga
Edward Everett Wilkinson ..... Clark
Jere Ike Williams ..... Jackson
Vester Vanderbilt Williams ..... Marion
Clyde English Wilson ..... Walker
William Herman Winton ..... Butler
Allen Killebrew Wood ..... Jefferson
Ralph Mason Wood ..... Dallas

FRESHMAN CLASS.

William Thomas Abbott ..... Jefferson
Samuel Kirke Adams ..... Dale
Louis Cole Albritton ..... Wilcox
George Alfonso Alexander ..... Jefferson
Lynch Thomas Alford ..... Wilcox
Claude Ivan Allen, Jr. ..... Jefferson
William Hugh Allen ..... Georgia
Alfred R. Allison ..... Etowah
Felix B. Anderson ..... Kentucky
Samuel Porter Anderson ..... Colbert
Joe Wheeler Andrews ..... Jefferson
Mote Williams Andrews ..... Georgia
Richard Carroll Andrews ..... Chambers
Walter Wild Andrews ..... Clarke
Wesley Howard Appleton ..... DeKalb
John Fleming Arnall ..... Georgia
William Henry Atkinson ..... Choctaw
Herbert Lamar Avery ..... Chambers
John McGough Baarcke ..... Montgomery
Alvin Alexander Baily ..... Jefferson
Alexander Whitelaw Bailey ..... Marengo
Hugh Reagan Bailey ..... Georgia
Julian Clarke Bailey ..... Marengo
William Owen Baldwin ..... Bullock
John Coleman Banks ..... Greene
Joe Marcellus Barnes ..... Houston
Charles Lorren Barrineau ..... Florida
Murdoch Barrs ..... Florida

Homer Gray Bartee ..... Georgia
John Roy Bartlett ..... Tallapoosa
Clarence Jennings Bartow ..... Kentucky
Morris Barton ..... Dallas
Samuel Barton ..... Dallas
William Harrell Baskin ..... Georgia
Lucien Kellogg Basore ..... Jefferson
Wilburn Holland Bass ..... Lee
Jesse Corwine Baxter ..... Madison
Francis Mitchel Beaird ..... Dallas
Augustus Earl Beasley ..... Florida
James Albert Beaty ..... Barbour
Donald Jackson Beauchamp ..... Morgan
Earle Wilson Beavers ..... Sumter
Robert Kyle Beggs ..... Etowah
Hugh D. Bell ..... Barbour
Aubrey Graham Bennett ..... Macon
Alwardus Oldholme Bercaw ..... Georgia
Harry Berkowitz ..... Jefferson
James Frank Bevis ..... Randolph
William Jefferson Bickerstaff ..... Russell
Frederick Kelly Binion ..... Butler
Robert Earle Binion ..... Butler
James Carlton Bishop ..... Tallapoosa
Floyd Earle Blackwelder ..... Tallapoosa
Walter Craig Blackwell ..... Jefferson
Murray Mitchell Blalock ..... Winston
Talmage William Bland ..... Cullman
James Cameron Blanton ..... Georgia
Herbert I. Bliss ..... Jefferson
John Dale Bonner ..... Wilcox
Moffatt Grier Bonner ..... Wilcox
Samuel Washington Borders ..... Jefferson
Julian Ivandale Boriss ..... Jefferson
John Harold Bowen ..... Chambers
Clarence Earle Boyd ..... Sumter
Ralph Franklin Boyd ..... Sumter
Samuel Marks Boykin ..... Montgomery
John Robert Bradley, Jr. ..... Florida
James Bradley ..... Baldwin
George Braly ..... Limestone
Frederick Oscar Braswell ..... Marengo
Frederick Wallace Breedlove ..... Louisiana
Whelden Patrick Breen ..... Jefferson
David Chandler Browder ..... Georgia
Barney Bivings Brown ..... Lauderdale
David Brown ..... Jefferson
Julius Alton Brown ..... Montgomery
Harry Leroy Brunson ..... Elmore
Charles Hough Bryan ..... Montgomery
Charles Buck ..... Jefferson
Marvin Henry Burel ..... Marshall
Orum King Burgess ..... Monroe
Robert Lee Hughes Burgess ..... Cleburne
Albert George Burkart ..... Cullman
George Burkes ..... Chambers
James Marshall Burt, Jr. ..... Lee
Joseph Wheeler Burton ..... Walker
George Brook Butler ..... Madison

John Marvin Butts ..... Barbour
Lurry Byrd ..... Dale
John Harvey Caldwell ..... Tallapoosa
Algernon Seale Calhoun ..... Clarke
William Edward Calhoun ..... Mississippi
George Callaway ..... Montgomery
Joseph Lee Camp ..... Talladega
Nahum Allen Cannon ..... Jefferson
David Heidson Carter ..... Montgomery
Vernon Lee Carter ..... Chambers
Charles Bolton Chambliss ..... Georgia
Edward Montgomery Chandler ..... Jefferson
Brooks M. Cherry ..... Houston
Luther Taylor Chesnut ..... Jefferson
Frederick Julian Chesser ..... Covington
Richard Hill Childers ..... Jefferson
Bert Lee Christian ..... Tallapoosa
Obie Worle Clark ..... Crenshaw
Thomas Sidney Clason ..... Georgia
Marion Clifton Cobb ..... Sumter
Wilmer B. Cogdell ..... Bullock
Willis E. Cohoon ..... Montgomery
George Henry Cole ..... Calhoun
Thomas Wilkes Coleman, Jr. ..... Calhoun
Eugene Alonzo Coley ..... Tallapoosa
Robert Henry Collins, Jr. ..... Lee
James Evans Combs ..... Chambers
Linford Windfield Conard ..... Marengo
David Lee Conley ..... Colbert
Hobart McKinley Conway ..... Marion
Ray Oliver Conwell ..... Jefferson
Curtis Preston Cook ..... Choctaw
Samuel Clarence Cook ..... Wilcox
Whit McCrary Cooke ..... Georgia
Horace Cecil Cooper ..... Florida
Nelson Drennon Cooper ..... Florida
Robert James Cooper ..... Lee
Hermon Frank Coplan ..... Jefferson
Woodruff Turner Coppeck ..... Kentucky
Robert Glover Cosper ..... Shelby
Thomas Eugene Costner ..... Jefferson
Neill Jacob Cowles ..... Crenshaw
Joseph Houston Craig ..... Arkansas
John Calvin Crenshaw ..... Butler
James Elijah Crocker ..... Walker
Moscoe Clifford Crocker ..... Marengo
John Dugald Crosby ..... Baldwin
Robert Kernahan Cross ..... Colbert
Joseph William Cullars ..... Lee
Edwin Davis Cumming ..... Jefferson
Walker Hobson Cummings ..... Chambers
William Columbus Cunningham, Jr. ..... Jefferson
John Hardy Curry ..... Pickens
Murray Walsh Dantzler, Jr. ..... Montgomery
Gordon Lee Darden ..... Georgia
Arthur Bryan Darracott ..... South Carolina
Joseph Chesleigh Davidson ..... Sumter
Emmette Melvin Davis ..... Jefferson
Edmond Pearce Davis ..... Mobile

Malcolm Carlo Davis ..... Mobile
Perry Alman Davis ..... Montgomery
Richard Orrick Davis ..... Morgan
Ruth Daye ..... Lee
Herman Hoover Deck ..... Marshall
William DelHomme ..... Mobile
Frank Dickinson ..... Florida
Jackson Miller Dickinson ..... Autauga
Walter Phillip Dickinson ..... Houston
James Dismuke ..... Georgia
David Westley Dobbins ..... Perry
James William Dooley ..... Kentucky
Julian Thirston Doughtie ..... Barbour
Ada Keller Dowdell ..... Lee
Merrick Dowdell ..... Mobile
Samuel Marion Dowling ..... Dale
Amos Brooke Downing ..... Calhoun
William Oscar Dozier ..... Winston
Rosa Drake ..... Lee
Ralph Brown Draughon ..... Geneva
John Edward Dreher ..... Montgomery
Thomas Duboise ..... Franklin
James Lumus Duffey ..... Jefferson
Wilton Burton Duncan ..... Lee
Rolfe Bolling Dunklin ..... Butler
Archibald Bullock Dunwoody ..... Georgia
Walter George Dupree ..... Tallapoosa
Frederick Alton Duran ..... Jefferson
Alvin Nathaniel Dutton ..... Georgia
Dewey Lee East ..... Tallapoosa
Harvey Arnold Edge ..... Chambers
Thomas Jackson Edwards ..... Tallapoosa
William Raymond Edwards ..... Elmore
Thurman Wheeler Eidson ..... Clay
Robert Elder ..... Dallas
Benjamin Milan Ellis ..... Crenshaw
Thomas Edwin Farned ..... Franklin
Ernest Rossier Farrell, Jr. ..... Wilcox
William Faust ..... Dale
Robert Lee Field ..... Calhoun
Christopher James Fitzgibbons ..... Connecticut
Harry Hill Fleetwood ..... Walker
George Robert Fleming ..... Pike
Cecil Floyd ..... Lee
Cyril Floyd ..... Lee
Harold Cobb Floyd ..... Georgia
Walter Dewey Flynn ..... Crenshaw
Paul Bryan Ford ..... Kentucky
Kenan Lee Foster ..... Chambers
John Pow Foy ..... Barbour
A. J. Frazer ..... Jefferson
David Hugh Frazer ..... Chambers
Lucian Anderson Frederick ..... Winston
Joseph Claude Freeman ..... Georgia
Raymond Dawson Freeman ..... Jefferson
William Joseph Fullington ..... Etowah
Karl Eugene Gallagher ..... Etowah
Lake Lamar Gantt ..... Covington
Harmon Austin Gardner ..... Lee

Peter Joseph Garland ..... Autauga
Jackson Morris Garner ..... Dale
Homer Franklin Gibson ..... Morgan
Ned Giddens ..... Pike
Robert Lee Glenn ..... Jefferson
Rex Glover ..... Jackson
Vernon Joseph Glover ..... Jefferson
Max Goldberg ..... Jefferson
Reid White Goldsby ..... Mobile
Frank Gordon ..... Perry
George Gosdin, Jr. ..... Coosa
Jacob Gottlieb ..... Jefferson
Walton Peyton Graves ..... Jefferson
Jesse Pierce Griffin ..... South Carolina
Lamar Neville Griffin ..... Monroe
Harry Clayton Grigsby ..... Jefferson
Euclid Taylor Gulledge ..... Elmore
James Thomas Haden ..... Macon
Osie Saxon Hagerman ..... Lee
Julius Pinckney Hagerty ..... Dallas
Cecil Crum Hagood ..... Conecuh
Charles Kenneth Hail ..... Baldwin
William Allen Hale ..... Montgomery
Edmund Cantelou Hall ..... Montgomery
Julian Orison Hall ..... Houston
Maurice Hall ..... Bullock
William Washington Ham ..... Coffee
Lucian Edward Hamlet ..... Colbert
John Taylor Hannon ..... Coosa
George Melvin Harlin ..... Mobile
David Shafter Harden ..... Elmore
Newton Gary Hardie ..... Jefferson
Hiram Burrell Hardwick ..... Jefferson
Clifford Nelson Hare ..... New Mexico
Richard Poucher Harmon ..... Indiana
Arthur Carlton Harper ..... Macon
William Ernest Harris ..... Geneva
James Alexander Harrison ..... Jefferson
Addison Reese Harvey, Jr. ..... Montgomery
Clarence Glen Harvey ..... Jefferson
Benjamin Franklin Hatchett ..... Limestone
John Hawes ..... Jackson
Claude Martin Haygood ..... Butler
Jack Duke Haynie ..... Lee
John Anderson Haynsworth ..... Perry
George Andrew Hazlewood ..... Jefferson
Guy Heard ..... Tallapoosa
Hardie Bee Helms ..... Coffee
Ralph Hampton Helms ..... Houston
George Halsey Henderson ..... Colbert
William Hobart Henderson ..... Jefferson
Robert Crane Hendley ..... Georgia
Harold Eugene Hendon ..... Macon
Joseph McJunkin Herndon ..... South Carolina
John Elkan Herzfeld ..... Dallas
Russel Hester ..... Randolph
Walter Wilson Hester ..... Franklin
K. B. Heustess ..... Covington
William Elmore Higgins ..... Randolph

Robert Hall Hines ..... Wilcox
Cecil Hitchcock ..... Shelby
Hiram Davis Hitchcock ..... Bullock
John Herbert Hitchcock ..... Bullock
Ray Hitchcock ..... Bullock
Benjamin Petty Hixon ..... Bullock
John Koga Hodnette ..... Macon
James Lemuel Hodnett ..... Lee
Carle Ransom Hogle ..... Jefferson
John Robert Hollingsworth ..... Bullock
James Fannin Holt ..... Montgomery
Samuel Dunham Holt ..... Mobile
H. L. Hood ..... Pickens
William Herman Hooper ..... Marshall
Clarence Hood Hornsby ..... Houston
Orlando Fox Howe ..... Montgomery
Henry Herbert Hugh Howell ..... Covington
Robert Haygood Howell ..... Montgomery
Joseph Gullatte Hunter ..... Lee
George Richard Hurd ..... Escambia
Milton Stratford Hureton ..... Colbert
Eugene Hurt ..... Macon
Nelson Hury ..... Jefferson
John Jasper Ingram ..... Lee
Charles Edwin Irwin ..... Calhoun
Donald Bryan Isom ..... Limestone
Albert Clay Jackson ..... Jefferson
John O'Connell Jackson ..... Montgomery
Millard Irby Jackson ..... Barbour
Frederick Wesley Jenkins ..... Chilton
George Luckie Jenkins ..... Chambers
John Lewis Jenkins ..... Chambers
Alton Claud Jennings ..... Chambers
Richard Albert Jervis ..... Morgan
Charles Henry Johnson ..... DeKalb
F. Joseph Johnson ..... Mississippi
James Thomas Johnson, Jr. ..... Shelby
Markham Paisley Johnson ..... Limestone
John Walter Johnson ..... Jefferson
Curtis Jones ..... Tallapoosa
Henry Clay Jones, Jr. ..... Montgomery
Herman Jones ..... Houston
Robert Dallas Jones, Jr. ..... Barbour
Rinaldo Greene Jones ..... Lee
Willis Young Jordan ..... Chambers
Alvin Morris Keller ..... Etowah
Franklyn Joseph Kelly ..... Connecticutt
James Davidson Kennedy ..... Jefferson
James Frederick Kicklighter, Jr. ..... Florida
Alexander Borian King ..... Georgia
James Hanlin Kinzer ..... Colbert
John Kirchler ..... Jefferson
James Floyd Kirk ..... Clarke
Albert Knapp ..... Lee
Joseph Forrest Knapp ..... Georgia
Walter Knight ..... Elmore
Gladstone Leighton Kohloss ..... North Carolina
Joseph Kraselsky ..... Henry
John Howard Lamar ..... Macon

Thomas Allen Lamar ..... Macon
Cam Brown Lanier ..... Georgia
Alexander Filmore Lankford ..... Etowah
Thomas Fossey Lansden ..... Colbert
William John Lasseter ..... Jefferson
Thomas Wright Lawford ..... Virginia
James Driskell Lawrence ..... Dallas
Harry Lamar Lazenby ..... Monroe
Karl James Lazenby ..... Monroe
Ernest Colvin Leatherwood ..... Dallas
Alpheus Jefferson Lee ..... Barbour
Joseph Osburn Lee ..... Montgomery
William Leith ..... Walker
William Theron Leslie ..... Calhoun
William Anthony Levie ..... Coosa
James Caruen Lewis ..... Etowah
Reuben David Lippman ..... Montgomery
Emmett Paul Livingston ..... Macon
Sylvan Henry Loeb ..... Montgomery
Frederick Long ..... Colbert
Thomas Hunter Long, Jr. ..... Florida
Arley Baden Love ..... Cullman
Louis Friedman Loveman ..... Etowah
Lige Loy, Jr. ..... Jefferson
Cecil Cicero Loyd ..... Jackson
Louis Lyons ..... Montgomery
Marvin Mather McCall, Jr. ..... Lee
Frank Hollingsworth McCarley ..... Chambers
William McClellan ..... Jefferson
Gladys McClendon ..... Lee
David Lanier McDavid ..... Monroe
Martin Joseph McDonald ..... Connecticutt
Earle Hustan McGhee ..... Blount
Robert Heard McGinty ..... Tallapoosa
Roy Albert McGuire ..... Mississippi
Victor Caryl McIlvaine (Irregular Course) ..... Florida
Frances Pearson McKemie ..... Georgia
Franklin Benjamin McKenzie ..... Marion
John Henry McKinley ..... Marengo
James Alonzo McKnight ..... Georgia
Emmett Howard McMillan ..... Talladega
Kenneth Duncan McMillan ..... Bullock
Lauchlin Emerson McMillan ..... Bullock
Angus Kelly McNair ..... Mississippi
Richard Warren McNeill ..... Florida
Hamilton McPherson, Jr. ..... Lowndes
Joseph Frank Macpherson ..... Jefferson
William Notley Maddox, Jr. ..... St. Clair
Peter Joseph Maguire, Jr. ..... Mobile
Robert Perry Major ..... Jefferson
Samuel Loeb Marcus ..... Wilcox
Bryan Bell Marsh ..... Choctaw
Roy Lee Martin ..... Houston
Robert Turner Meadows ..... Lee
James Alfred Megginson ..... Clarke
Theodore Jackson Megginson ..... Clarke
William Tartt Mellen ..... Sumter
Walker Hamilton Mendenhall ..... Jefferson
Philip Eugene Memoli ..... Jefferson

Roger Merkle ..... Talladega
Fletcher Edward Miller ..... Covington
Walter Miller ..... Barbour
Gera David Mitchell ..... Henry
Stephenson Douglass Mobley ..... Georgia
Jacob Mohr ..... Montgomery
John Floyd Monk ..... Georgia
John Melvin Monk, Jr. ..... Barbour
Herman Eugene Monroe ..... Madison
Raymond Strune Monroe ..... Madison
Robert Charles Montgomery ..... Jefferson
William Montgomery ..... Montgomery
Byrd Lee Moore, Jr. ..... Dallas
William Francis Moran ..... Connecticutt
John Lewis Morgan ..... Jefferson
Rufus Eugene Morgan, Jr. ..... Tennessee
Clifton Chambers Morris ..... Chambers
Joseph Morris ..... Limestone
Emory Morton ..... Bullock
Henry Benton Moses ..... Russell
Frank Shackelford Mosley ..... Montgomery
Alvin Mount ..... Pike
James Asbury Mulky ..... Geneva
Aubrey Murphy ..... Conecuh
Wilson Murphy ..... Butler
Delmar Bryan Murrell ..... Ohio
George Alwyn Muths, Jr. ..... Mobile
Sherman Lewis Muths ..... Mobile
Fleming Scott Nance ..... Barbour
Thomas Neely ..... Marengo
Arthur O'Pool Nesbit ..... Morgan
Milton Henry Nesbitt ..... Jefferson
Lesslie Newman ..... Lee
James Anderson Newton ..... Georgia
Joseph Thomas Nichols ..... Chambers
Rufus Percy Nicholson ..... DeKalb
Walter Steele Barnes Noble ..... Mobile
Clarence Arthur Norton ..... Barbour
Sidney Lawson Norwood ..... Jefferson
Joseph James O'Brien ..... Jefferson
William Durward O'Brien ..... Tallapoosa
William Fisher O'Neal ..... Georgia
Benjamin Conley O'Rear ..... Etowah
Herman Orr ..... Houston
John Robert Orr ..... Bullock
James Claud Orr ..... Washington, D. C.
Gustavus Adolphus Orum ..... Bullock
Malcolm Garrison Owen ..... Jefferson
Hasting Vann Owens ..... Henry
Hugh Pace ..... Calhoun
Edward Hendree Paine ..... Macon
Bernard Lewis Pake ..... Montgomery
Charles Daniel Parker ..... Montgomery
Clarence Edward Parker ..... Macon
Hubert Parker ..... Mobile
James Christopher Parr ..... Hale
Jacob Lowe Pate ..... Chambers
Robert Alexander Patterson ..... Georgia
William Hobson Pearce ..... Talladega

Barlo Pearce ..... Marion
Benjamin Franklin Pearce ..... Calhoun
William Preston Pearson ..... Tallapoosa
Clyde Hardin Peete ..... Limestone
Joseph Lorenzo Pepper ..... Georgia
Henry James Phillips ..... Choctaw
Walter Leham Pinner ..... Montgomery
Bunyan Pipkin ..... Florida
Mancell Grover Pitts ..... Louisiana
Richard Pitts ..... Montgomery
Cecil Sheppard Pollard ..... Crenshaw
George Dean Pollock, Jr. ..... Jefferson
Joseph Edward Pollock ..... Florida
George Wilkie Pope, Jr. ..... Crenshaw
Roy Thomas Porter ..... Lawrence
Clyde Edward Posey ..... Monroe
Paul Augustus Potts (Irregular Course) ..... Georgia
Adam Pow ..... Jefferson
William Carl Powell ..... Walker
Joseph Carson Prather ..... Talladega
Edward Theophilus Price ..... Choctaw
Henry Lee Price ..... Kentucky
Bryan Proctor ..... Jackson
Romain Proctor ..... Jefferson
Frank Jacob Pulford, Jr. ..... Louisiana
Robert Lackey Pulley ..... Madison
Frank Hendrick Rainer ..... Coffee
Lamar Sidney Rainer ..... Coffee
Lee Burr Ramage ..... Pike
Sidney Hughston Rawls ..... Covington
Henry George Redding (Irregular Course) ..... Georgia
Arthur Charles Reed ..... Jefferson
Thomas Edward Reed ..... Fayette
William Omar Reed ..... Colbert
Alvin O'Cecil Reese ..... Russell
George Wright Reese ..... Florida
James Regan, Jr. ..... Jefferson
William Gordon Revel ..... Montgomery
Charles Frederick Reyonlds ..... Dale
Archibald Thomas Richardson, Jr. ..... Sumter
Jewitt Edward Richardson ..... Montgomery
Oscar Grice Richardson ..... Sumter
Joseph R. Robbins, Jr. ..... Perry
James D. Roberson ..... Winston
Andrew J. Roberts ..... Randolph
Charles Lamar Roberts ..... Monroe
George Dayton Roberts ..... Walker
Osce Peebles Roberts ..... Jefferson
William Edgar Roberts ..... Henry
William Houston Roberts ..... Marion
Dickson Wharton Robertson ..... Jefferson
Walker Jackson Robertson ..... Lauderdale
Jack Hilman Robinson ..... Jefferson
Edward Joseph Rodriquez ..... Louisiana
Percy Rogers ..... Marengo
Leon Rowan ..... Dallas
Sloan Rowan (Irregular Course) ..... Dallas
Charles Anderson Rowland, Jr. ..... Colbert
Brewer Ruff ..... Macon

Robert Ronald Ruff ..... Jefferson
William Bricken Runyan ..... Clay
John Alfred Rush ..... Lee
John Willard Russell ..... Florida
Henry Buggs Sally ..... South Carolina
Nathan Rufus Sally ..... South Carolina
Roy Chesler Sampley ..... Georgia
John Sanders, Jr. ..... Houston
John R. Sanders, Jr. ..... Pickens
Robert S. Sandlin ..... Tallapoosa
Walfrid Joseph Santa Cruz ..... Mobile
Alexander Marion Saunders ..... Florida
William Henry Sayre ..... Ohio
Charles Phillip Scarborough, Jr. ..... Chambers
Robert Eustace Schuler ..... Etowah
Euel A. Screws ..... Lee
Edward DeLeon Scruggs ..... Escambia
Joseph Alexander Scruggs ..... Escambia
George Purser Segrest ..... Tallapoosa
Hugh Sellers ..... Houston
John Allen Sellers, Jr. ..... Montgomery
John Andress Shannon ..... Monroe
William Johnson Shelverton ..... Georgia
John Edward Sherrod ..... Colbert
John Bret Shirey ..... Marion
Edward Hubert Shirley ..... Shelby
Samuel Smith Sights ..... Kentucky
John Lin Simmons ..... Barbour
James Orlando Simmons ..... Monroe
Clifford Marton Sims ..... Barbour
Elliott Bessellieu Sims ..... Georgia
Charles C. Siniard ..... DeKalb
Troy B. Sizemore ..... Marion
Leonidas Bryan Sledge ..... Hale
Charles Powell Smith ..... Etowah
Ely Watt Smith ..... Tallapoosa
George Roe Smith ..... Marengo
Harry Dean Smith ..... Chambers
Hester Moore Smith ..... Jefferson
James Follin Smith ..... Escambia
Marion Gordon Smith ..... Jefferson
Malcolm Hill Smith ..... Autauga
Perry Glenn Smith ..... Pickens
Robbie Smith ..... Lee
Thomas Spurgeon Smith ..... Bullock
Virgil Alford Smith ..... Geneva
John W. Smythe ..... Crenshaw
James Henry Sorrells ..... Arkansas
Sewell Clarke Southard ..... Mobile
Samuel Sanford Sowell ..... Escambia
Philip Hugh Spann ..... Houston
Noah Lamont Sparkman ..... Madison
Len Ellis Speer, Jr. ..... Elmore
Sarah Augusta Spratling ..... Virginia
Hugh Lafayette Spriggs ..... Jefferson
Hugh Griffith Spurlock ..... Barbour
Crofford Freeman Stallings ..... Georgia
Edward Jacobs Stallings ..... Georgia
John Wilmer Stanfield ..... Chilton

Claude Beard Stanford ..... Monroe
Joel Gibson Stanford ..... Lee
Alexander Dewey Staples ..... Jefferson
Robert LeFilo Steadham ..... Jefferson
Percy John Steele ..... Franklin
Eugene Jules Stern ..... Montgomery
Douglas Marion Stevens ..... Calhoun
Otis Edward Stevens ..... Chambers
Robert P. Stevens ..... Georgia
Samuel F. Stevens ..... Georgia
Dewey Stewart ..... Morgan
Benjamin Boulware Stokes ..... Jefferson
Robert D. Stokes ..... Wilcox
William Morgan Stokes ..... Walker
John Emmett Stone ..... St. Clair
Tilman Augustus Stone ..... Blount
William Frankling Stone ..... Tallapoosa
Otis Story ..... Lee
Frank Stough ..... Montgomery
John Tarry Straiton ..... Hale
Merit Dunklin Street ..... Calhoun
Edward Leslie Strickland ..... Marengo
Harry Stringfellow ..... Tennessee
Robert Lawrence Summers ..... Etowah
Samuel T. Suratt, Jr. ..... Montgomery
Clarence Wilmer Sutherlin ..... Georgia
Robert Lee Sutton, Jr. ..... Dallas
Henry Hartwell Swearingen ..... Wilcox
Charles Edwin Tait ..... Wilcox
Vergil Cline Tamplin ..... Lee
Beatty Tanner ..... Jefferson
Richard Edwin Tatum ..... Kansas
Donald Taylor ..... Georgia
John Osman Taylor ..... Arkansas
Robert Emmett Taylor ..... Arkansas
Edward Allison Terry ..... Elmore
William W. Terry ..... Madison
James Geoffrey Thompson ..... Jefferson
James Woodruff Thornton ..... Geneva
Kirk M. Tibbets ..... Limestone
Clay Tillery ..... Lee
Lee Roy Tillery ..... Georgia
Erastus Tolbert ..... Monroe
Francis Bartow Trammell, Jr. ..... Chambers
Zachary Taylor Trawick ..... Lee
John Thomas Traywick, Jr. ..... Montgomery
John Furman Tribble ..... Walker
Frank Tune ..... Walker
Clarence Hall Turk ..... Perry
Frederick Dent Turner ..... St. Clair
Morton Victor Turner ..... Georgia
James Winchester Vaiden ..... Perry
Ralph Valentine ..... Dale
Vernon Herman Vandiver ..... Clay
Rufus H. Vardaman ..... Talladega
Robert James Varner ..... Lee
Edgar Daniel Vaughan ..... Lee
Oliver Taylor Vinson ..... Florida
Allan Jackson Wade ..... Jefferson

Eldridge Gypson Walker ..... Georgia
Leon Wallace ..... Geneva
Otis Walker ..... Lee
Curtis C. Walther ..... Louisiana
Denson Alexander Ward ..... Coosa
George Washington Ward ..... Wilcox
Otis Merritt Ward ..... Escambia
Edwin F. Warren ..... Lee
Felix Dewey Warren ..... Morgan
Stembridge Warren ..... Lee
Benjamin Charles Warthen ..... Tallapoosa
Harry Wilfred Watkins ..... Jefferson
Theron P. Watkins ..... Jefferson
Lawrence Watts ..... Mississippi
Charles Dewey Weaver ..... Talladega
Thomas Vasan Webb ..... Cleburne
Edwin Beall Weedon ..... Barbour
Nathaniel Marion Weems ..... Dale
Sigmund Irvin Weil ..... Montgomery
Herman Weinstein ..... Walker
Julian Lewis Weinstein ..... Jefferson
James B. Welch ..... Randolph
Raymond Kendrick Welch ..... Houston
Arthur Luna Welden ..... Elmore
Melvin Anderson Weldon ..... Montgomery
David Deaderick Wendel ..... Tennessee
Mont Julian Whidden ..... Florida
Edward Cheek White ..... Autauga
James Paul Mason White ..... DeKalb
James Walter White ..... Hale
George Sparkes Wilkes ..... Morgan
James Paul Wilkes ..... Georgia
Arthur Warham Williams ..... Dallas
Comer Warren Williams ..... Barbour
Obadiah Dumas Williams ..... Monroe
William Aubrey Williams ..... Elmore
William Francis Williams ..... Monroe
Edwin Willingham, Jr. ..... Chambers
Earle Frederick Wilson ..... Escambia
Julius Wolf ..... Perry
Henry Serkler Wood ..... Jefferson
James Harden Wood ..... Etowah
Warfield Richardson Wood ..... Jefferson
Wesley Hill Woodard ..... Madison
Withers Woodfin ..... Perry
James Wright Woodroof, Jr. ..... Limestone
Edgar Hamer Woods ..... Lee
Charles Walter Wright ..... Jefferson
Horace Norton Wright ..... Bullock
Harrison Oscar Yelverton ..... Montgomery
Daniel Mabry Young ..... Mississippi
Duke Webb Young ..... Kentucky
Rowland William Young ..... Lowndes
Robert Wadkins Youngblood ..... Houston
William Boroughs Youngblood ..... Monroe
Charles Hodges Zuber ..... Lee

PRE-MEDICAL COURSE

Samuel Henderson Adams ..... Houston
David Goldberg Alston ..... Georgia
John Lewis Atkins ..... Cleburne
Robert O'Keefe Atkins ..... Cleburne
Frank Baird ..... Calhoun
William Wallace Barnett ..... Houston
Mark McCulloh Byrd ..... Lee
Charles Archibald Carmichael ..... Geneva
Jerome Cochran Chapman ..... Geneva
Julius Emory Clay ..... Georgia
William Greene Clements ..... Limestone
William Brown Cowen ..... Jefferson
James Ware Cox ..... Wilcox
Harry Jenkins Crawford ..... Georgia
John Blackburn Crews ..... Perry
Edwin Thomas Daniel ..... Georgia
William Walter Edwards ..... Georgia
Lofton Freeze Gray ..... St. Clair
William Stephenson Halsey ..... Colbert
James Lonnie Hamilton ..... Franklin
John Gilbert Harlan ..... Tallapoosa
Jesse Terryl Harper ..... Monroe
Gilbert Earle Haslam ..... Calhoun
Raymond Green Hollis ..... Lamar
Clarence Fullen Holt ..... Georgia
Marcus Crow Hunt* ..... Chambers
George Bullock Inge ..... Mobile
Robert Hays Johnson ..... Marion
Neal Bruce Kearley ..... Monroe
Joseph Clowd Kendrick ..... Butler
Maxie Neal McEachern ..... Barbour
William Harvey McEachern ..... Barbour
Rex McKinion ..... Georgia
Walter John McMurray ..... Georgia
Thomas Earle Martin ..... Dallas
Joseph Marion Merritt ..... Houston
Thomas Hall Mitchell ..... Jefferson
John Comer Nichols ..... Clarke
Phillip E. Powers ..... Georgia
King T. Prather ..... Randolph
Brunson Martin Sally ..... South Carolina
Roy Brown Sewell ..... Randolph
Wyatt Blake Shaffer ..... Calhoun
Tainer Bruce Threatt ..... Georgia
Archie Edward Thomas ..... Coosa
Joseph Lee Truitt ..... Georgia
Samuel Guy Turnipseed ..... Bullock
Joseph Marion Watson ..... Florida
William Schofield Winters ..... Jefferson

IRREGULAR STUDENTS

Carl Cofield Amerson ..... Lee
Byron Yarbrough Pennington ..... Covington

DEPARTMENT OF PHARMACY

FOUR-YEAR COURSE

SENIOR CLASS

William Henry Philpot ..... Macon

JUNIOR CLASS.

Winfield Scott Owsley ..... Elmore

TWO-YEAR COURSE

SECOND YEAR

William Gerard Fowler ..... Montgomery
Conway John Justice ..... Autauga
George Mark Wood ..... Montgomery

FIRST YEAR

James Glover Andrews ..... Chambers
William Winston Ashurst ..... Tallapoosa
Emmet Edison Bennett ..... Barbour
Julian Irvin Bonner ..... Wilcox
Bennett Huffman Burks ..... Coosa
Eugene Feagin ..... Wilcox
Anner Ray Gary ..... Barbour
Charles Spurgeon Heard ..... Randolph
Durward Earle Jones ..... Randolph
Leon Lee ..... Randolph
Ridley Lovvorn ..... Randolph
Glenn Mills ..... Conecuh
William Bryan Northcutt ..... Montgomery
Samuel Wilson O'Neal ..... Coffee
Ped Ray ..... Covington
Edward Heltman Rothrock ..... Etowah
Jessie Seibold ..... Marshall
Viola Seibold ..... Marshall
Milton Russell Willis ..... Tallapoosa
William Charles McCall ..... Cuba

COLLEGE OF VETERINARY MEDICINE

SENIOR CLASS

John Howard Beckham ..... Hale
George Barnett Bradshaw ..... Lee
William Posey Claughton ..... Chilton
William Lipscomb Douglass ..... Marengo
Robert Harper Hamner ..... Pickens
Everett Lee Harper ..... Pickens
McKenzie Heath ..... Coffee
Walter Hudson Hines ..... Monroe
John Bryant Jordan ..... Pickens
Dorrance Davenport Major ..... Mississippi
James Daniel Ratchford ..... Chambers
Raymond Rinory Sally ..... South Carolina
Robert O'Neal Suddath ..... Georgia

JUNIOR CLASS

John Herbert Murray ..... Lee
William Albert Neal, Jr. ..... Jefferson
John Oliver, Jr. ..... Pickens

SOPHOMORE CLASS

Reuben Marshall Bentley ..... Crenshaw
Benjamin Z. Burleson ..... Marion

James Warren May ..... Mobile
Frederick Davis Patterson, Jr. ..... Georgia

FRESHMAN CLASS

Ennis Augustus Davis ..... Georgia
James Kyle Elliott ..... Lee
Edward Everett ..... Mississippi
Cecil Whitten Grogan ..... Calhoun
Robert Ralph Holman ..... Dale
James Centre King ..... Lee
Charles B. McCartha ..... Elmore
Arthur Augusta Miller ..... Marengo
Jesse Lokey Miller ..... Georgia
Joseph Robert Morgan ..... Coffee
Hugh Anderson Neighbors ..... Coosa
Robert Manley Neighbors ..... Hale
William Joseph Ponder ..... Tallapoosa
Frank Alexander Reagan ..... Clay
Clifton Clark Russell ..... Talladega
Robert H. Slaton ..... Lee
Samuel Brightman Till ..... Butler
George Thomas Turnipseed ..... Bullock
James Zachary Ward ..... Lee
George Dewey Wilbanks ..... Tallapoosa

Irregular Students

Edmund Pettus Lacy, Jr. ..... Marion
Wilkie Hudson Lee ..... Lowndes
Sanford Grey Mayes ..... Green

AUTO MECHANICS COURSE

William Jefferson Christian ..... Jefferson
Claud Hawkins Funderburg ..... Jefferson
Daniel La Salle Hagood ..... Escambia
John Deloach King ..... Lee
George Delone Maske ..... Jefferson
James David Randall ..... Macon

SOLDIERS' REHABILITATION COURSE

Bonnie McKinley Allen ..... Colbert
Porter Anderson Teague ..... Morgan

IRREGULAR STUDENTS

John Whitley Acton ..... Jefferson
James Tait Beck ..... Wilcox
John Joseph Beggs ..... Jefferson
Mose Bilder ..... Tennessee
Giles Homer Carlovitz ..... Mississippi
Jefferson Leon Clay ..... Dallas
Frank M. Cottle ..... Etowah
Samuel Donovan Croll ..... Pickens
Berry Cruse ..... Jefferson
George Williamson Cushing ..... North Carolina
Perry Caldwell DeBardeleben ..... Dallas
Harry Sisson Fullwood, Jr. ..... Jefferson
Albert Darrington Gayle ..... Dallas
Maurice Greenberg ..... Jefferson
Jack Randolph Hornady ..... Jefferson
Grover Jackson Hornsby ..... Elmore
Milo Barrett Howard ..... Montgomery

Joel E. Johnson ..... Geneva
Henry Jones Kernachan ..... Lauderdale
Howard Lamar, Jr. ..... Lee
James Ottaway Lanham ..... Dallas
James Thomas Logan ..... Coosa
Charles Lewis Mathews ..... Montgomery
George Bertram Mathison ..... Henry
Ernest P. McDonald ..... Lee
Edward Flack McDuffie ..... Etowah
Gaston Alexander McKnight ..... Marengo
Albert Cotton McMillan ..... Russell
William Oscar Mulkey, Jr. ..... Geneva
Douglas Gordon Pamplin ..... Lauderdale
James Joseph Paul ..... Jefferson
Archie Jesse Phillips ..... Calhoun
Lee Roy Roberts ..... Calhoun
Ernest C. Russell ..... Montgomery
Eldridge Remley Speight ..... Georgia
Weston McLean Sullivan ..... Sumter
Dewey E. Tanner ..... Mobile
Gautier Foster Thompson ..... Macon
Dalhman A. Turner, Jr. ..... Jefferson
Jack Walton ..... Georgia
Charles Lenard Warner, Jr. ..... Clarke
Morton B. Welch ..... Lee
Walter Alexander Whatley ..... Lee
Chester Williamson Winn, Jr. ..... Jefferson
John R. Witt, Jr. ..... Limestone
John Stanton Woodson ..... Walker
Eugene Lyon Wynne ..... Marengo

SUMMARY.

Graduate Students	10
Senior Class	90
Junior Class	113
Sophomore Class	220
Freshman Class	674
Pharmacy	25
Veterinary Medicine	43
Pre-Medical Course	51
Auto-Mechanics	6
Sheet Metal	2
Irregular Students	47
	1281
Deduct for names counted twice	2
Total	1279
Army Vocational Courses (Section B)	1202
Total	2481

NUMBER OF STUDENTS IN EACH SUBJECT OF STUDY.

Mechanical Engineering	192	Auto Mechanics	7
English	495	Architecture	24
History	851	Mechanical Drawing	580
International Law	183	Chemistry	776
Civics	12	Agronomy	107
French	60	Animal Husbandry	207
German	7	Physics	405
Spanish	117	Botany	173
Latin	17	Entomology	161
Education	141	Zoology	22
Political Economy	61	Horticulture	117
Mathematics	664	Forestry	20
Chemical Laboratory	249	Veterinary Medicine	43
Geology	67	Landscape Gardening	18
Mineralogy	31	Machine Design	77
Civil Engineering	55	Descriptive Geometry	160
Surveying	318	Mechanic Arts	311
Electrical Engineering	170	Pharmacy	33
Telephony	22	Military (S. A. T. C.)	878
Radio	120	Military (R. O. T. C.)	626

RESIDENT BY STATES

Alabama	1072
Georgia	96
Florida	31
Mississippi	15
South Carolina	14
Louisiana	10
Tennessee	7
Kentucky	7
Arkansas	5
North Carolina	4
Connecticut	4
New Jersey	2
Ohio	2
Washington, D. C.	2
Texas	1
Kansas	1
New Mexico	1
Indiana	1
Cuba	1
Mexico	1

INDEX

	PAGE
Academic Year	166
Admission	29
Admission on Certificate	31
Admission from other Colleges	36
Agricultural Club	155
Agricultural Education	64, 141
Agricultural Experiment Station Staff	9, 12
Agronomy	23, 36, 58, 122
Alumni	155
Animal Husbandry	25, 59, 133
Architecture	21, 54, 114
Architectural Engineering	55, 114
Astronomy	80
Athletics	156
Auto Mechanics Course	53, 96
Band	154, 170
Boarding	158, 165
Botany	23, 60, 125
Buildings of the College	26
Cadet Officers	167
Calendar 1919-1920	3
Catalogue of Students	175
Certificate Schools	32
Changes in Course	35
Chemical Engineering	22, 49, 118
Chemistry	22, 51, 118
Civil Engineering	15, 45, 85
Classification of Students by Residence	198
Classification of Students by Studies	198
College Established	10
College, Origin and Purposes of	10
College of Agricultural Sciences	22, 57, 118
College of Engineering, Mines and Architecture	15, 45, 85
College of Veterinary Medicine and Surgery	26, 67, 145
Committees of the Faculty	8
Conditions, Removal of	31
Courses of Instruction	36, 43, 68
Courses for Women	33
Degrees	38
Discipline	157
Distinctions	158
Drawing	20, 105
Economics	68
Education, Agricultural	64, 141
Electrical Engineering	15, 46, 91
Electricity, Applied	51
Engineering Society	155
English	39, 68
Entomology	24, 131
Examinations, Entrance	29
Examinations, Monthly and Term	159
Expenses	165
Exercises Required	35
Experiment Station Council	9
Extension Work	13 138

INDEX

	PAGE
Faculty and Officers	5
Farm	23
Fees, Alabama Students	165
Fees, Non-Residents	165
Fee, Contingent	164
Fees, Laboratory	164
French	75
General Course	43
German	76
Geology	19, 101
Graduate Courses (see each department also)	39
Graduates, 1918, Roll of	172
Gymnasium	28, 156
History	25, 72
Honor System	159
Horticulture	24, 66, 129
Laboratories	15, 41
Laboratory Facilities:	
Agriculture	23
Animal Husbandry	25
Architecture	21
Botany	23
Chemistry	22
Civil Engineering	15
Drawing	20
Entomology	24
Electrical Engineering	15
History	25
Horticulture	24
Mechanic Arts	17
Mechanical Drawing and Machine Design	20
Mechanical Engineering	16
Military Tactics	26, 80
Mineralogy	19
Mining Engineering	19
Ore Dressing	20
Pharmacy	24
Physics	26
Physiology	26
Veterinary Science	26
Laboratory Fees	164
Latin	72
Library	28, 163
Literary Societies	154
Location of College	166
Mathematics	78
Mechanic Arts	17, 95
Mechanical Drawing and Machine Design	20, 105
Mechanical Engineering	16, 47, 95
Medical Attendance	165
Metallurgy	51, 119
Military Drill	158
Military Organization	80, 167
Military Science and Tactics	80
Military Science, Distinguished Students in	171

INDEX

	PAGE
Mineralogy 19,	101
Mining Engineering 19, 48, 53,	101
Modern Languages	75
Museum	163
Non-Resident Students	164
Origin and Purpose of the College	10
Officers, Cadet	167
Officers, College	8
Officers of Experiment Station	9
Organization, Colleges	11
Pharmacy 24, 61,	139
Psychology 68,	142
Physics 26,	79
Physiology 26,	147
Post-Graduate Courses	39
Prizes	161
Professional Degrees	40
Public Speaking	69
Records	159
Re-Examinations	159
Registration	29
Regulations	157
Religious Services	158
Reports	159
Requirements for Admission	29
Road Foremen and Inspectors, Course for	52
Scholarships	160
Societies, Literary	154
Society of the Alumni	155
Spanish	77
Special and Irregular Students, Regulations	35
Station Council	9
Students, Roll of	175
Surgeon	165
Surveying 15,	85
Thesis	165
Trustees	4
Uniforms	80
Veterinary Medicine 26, 67,	145
Veterinary Medical Association	156
Veterinary Science 26,	145
Wireless Telegraphy 52,	94
Woodwork	95
Women, Courses for	33
Young Men's Christian Association	154